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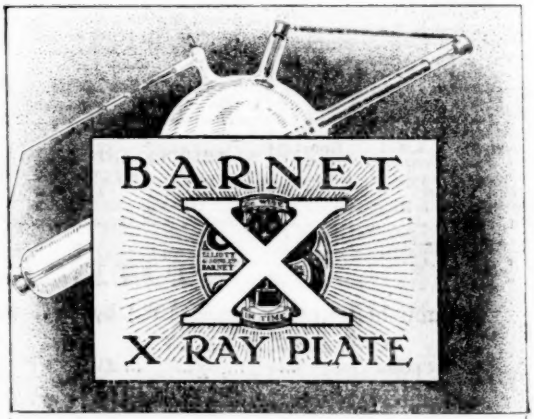

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IT is a frequent statement that the accumulated experience of the general practitioner finds inadequate expression, and adds too little to the store of scientific knowledge of disease. Too much may readily be demanded from this source. The nature of the general practitioner's work leaves him as a rule little opportunity for the reasoned and detailed consideration of the items of his experience, and he perforce has in general to be content with the immediate alleviation of disease and to leave considerably to others the direct advancement of science.

Allowance, however, being given to this consideration, a personal retrospect cannot but leave a sense of disappointment that, though there may have been some gain of one's individual knowledge, there has been complete failure to add even an iota to the store of general knowledge. "Produce," says Carlyle, "produce: were it but the infinitesimalest fraction of a product, produce." Alas for the failure to respond to that call from Sartor, the Bible of early days of struggle! But why the failure, and wherein is it of general application? Partly temperamental; and it would be unreasonable to expect advanced scientific work from every general practitioner. It is not every mind that has the scientific bias; not every medical student is a budding Pasteur. The faculty of practical application of knowledge, which is the essential rôle of the practitioner, is often divorced from the faculty of coördination of experience and inductive reasoning therefrom. Partly educational; and looking back upon one's training one realises that there was too little evocation of individual powers of reasoning, presentation of items of acquired knowledge with insufficient stress on the unexplained factors the elucidation of which is necessary for a fuller understanding of the problems of disease. In short, the student is apt to blossom forth into the practitioner, feeling that his knowledge is gained and that his function henceforth is only to utilise it. The bias thus given to the mind has been retained, and the *mens medica* has grown as a crystal grows, by accretion, and not as an organism by absorption, metabolism, and development. Herein is the essential need, the need of vital reaction. The danger is that we all tend to be creatures of habit, slaves of routine, to work as a machine in an accustomed groove, to do to-day what we have done yesterday, to wear blinkers whereby our vision is limited. It is difficult to resist this tendency, and only the favoured few can fully do so and retain a mind impressionable, alert, imaginative, vital. Hence the failure to see in any presentation of disease more than has been seen before or the textbooks have revealed; hence an unwillingness to test authority by experience; hence the submergence of the individual mind, and the bondage of tradition. This tendency is to a certain extent inevitable. It is a counsel of perfection to expect the busy practitioner after long days and disturbed nights to keep his mind ever alert; moreover, the individual patient asks to be relieved and not to be studied. Neither is the tendency altogether to be deplored; the human material dealt with is too precious, the interests at stake too vital, to allow with safety the unbalanced play of minds "complexionally propense to innovation." The middle course is to be desired. And such consummation is the more likely to be attained if the young graduate should leave the portals of his school, not only with a mind stored with ascertained facts, but should carry with him and retain some vision of the unexplored domain, an awakened sense of the responsibility and power of individual thought, heightened by a knowledge of the work of those who have broken ground before them untilled.

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Medicine, it has been said, is an inexact science. Its practice is sometimes an object of scornful criticism by those who have no inner knowledge of its difficulties and may be accustomed to deal with subjects more demonstrable and less elusive. Again, many of the public appear to regard the practitioner of medicine as one whose brain is compactly pigeon-holed into compartments, each labelled with the name of a disease and carefully docketed with the appropriate remedy. Alas, the matter is not so simple that there is never room for hesitancy; but one soon finds that to express hesitation is to be lost, and to be in doubt is interpreted as weakness. And the young practitioner himself is apt to start out with a perhaps undue consciousness of the fullness of his knowledge and of the resources of his scientific equipment, soon, however, to find himself in uncharted seas.

Two considerations lend themselves to this misconception. In the first place, disease as seen in practice is often not according to schedule. Disease as pourtrayed in the textbooks is an entity, a finished picture, a completed building, an orderly procession; illness, as frequently seen in the consulting-room, is not a definite entity, is ill-defined, incomplete, refuses to be labelled, presents a disarray of vague symptoms. It is with this sphere of vague illness, of initial stages, of the symptomatic manifestation of ill-defined disease, of functional disorder, that the work of the general practitioner is largely concerned. Such illness does not lend itself readily to clinical teaching, or exact portraiture; its origin and course are frequently obscure and its treatment outside the range of ordinary routine. Thus it has not come readily within the scope of early systematic training, and the practitioner must gain his knowledge from his own experience and the exercise of his own judgment, strengthened, if possible, by contact with his seniors in assistance or partnership. The second consideration, which is associated with the first, and which goes far to explain the inexactitude of medicine, is that the practitioner early discovers that he is not so much called upon to treat disease as to treat persons who are ill; in other words, that he has to deal not with a mechanism, but with a delicate organism inhabited by an individual. It is not only the gross effects of disease which have to be countered, but the reaction of an individual to such disease. There is always the personal equation. It would almost seem as if there were a physiological or a pathological character. The author of Hydriotaphia finds individual divergence even in decay when he states, "bodies in the same ground do not uniformly dissolve, nor bones equally moulder." Even in the more definitely objective types of disease no two cases are exactly similar; no two cases of enteric are identical in course and manifestation, one case of pneumonia differs from another, carcinoma may develop aberrant processes. But the personal equation is much more than this. There is the individual characteristic; his general attitude to life, the courage with which he meets the strokes of fate, his kicking against the pricks, his equanimity or irritability, his self-concentration or self-forgetfulness. And other factors enter in: the wisdom or unwisdom of relatives, business anxieties, family anxieties, all the social factors which are involved when illness lays a heavy hand on a household, or extinction threatens a life on which affection is centred. Here, then, is an uncharted sea in that the family practitioner has to face more than the mere problem of disease. Said Bacon:

"Physicians are some of them so pleasing, and conformable to the humour of the patient, as they presse not the true Cure of the Disease: and some other are so regular in proceeding according to Art, for the Disease, as they respect not sufficiently the Condition of the Patient. Take one of a Middle Temper."

There is an art as well as a science of medicine. The practitioner is incomplete who has the art without the science, or the science without the art; but incomplete also if the science and the art are limited to medicine alone, for the field is wider far. Hence the necessity for a width of outlook in medical education, for a knowledge of the humanities, for a social interest: herein the factor which precludes the supersession of the general practitioner by the specialist: herein the necessity of visualising the human factor in disease.

SOME DIFFICULTIES OF GENERAL PRACTICE.

For those men who do not succeed to established practices there is a varying period of waiting for patients, followed by a period of moderate success, and then, if fortune and merit favour, a period of unremitting activity. Sir Andrew Clark is said to have stated that he strove 10 years for bread, 10 years for bread and butter, 20 years for cake and ale. The early years are not pleasant to live through, but

they bring a pleasure in the retrospect of difficulties surmounted. They have their special dangers—financial anxiety, the ennui of idleness, the temptation to use specious methods of advancement; they have their advantage in a continued opportunity for study, and in the fact that work when it does come may be done without rush in thoroughness, and thus a good foundation laid.

But the difficulties of the general practitioner arise more especially in the busy years, when there may be not too few but too many patients to be seen, when the day may bring no interval for leisure and the night be often robbed of rest. There are men, who are to be envied, who can compass a large amount of work without evidence of haste and who, however busy they may be, leave a patient with the impression that he only is the chief concern. But others of us in busy times are conscious of a constant sense of strain, of thinking in one house of the next, of a feverish anxiety as to how the round of the day is to be completed. It is in this atmosphere of haste that some of the main difficulties of general practice are to be found. It has often been said that mistakes are made not from lack of knowledge but from lack of examination. Full examination is neglected not so much from carelessness as from absence of sufficient time for thorough review. Thus the work is left to the next visit or consultation, or to the one after that, and may be still postponed, until complications may develop or the patient go elsewhere, to the detriment of reputation.

There arises from this another danger, that of the mere symptomatic treatment of disease. It is a commonplace statement that such symptomatic treatment is sometimes all that can be compassed, as the ultimate cause may be obscure and undeveloped. Also the patient demands relief from urgent symptoms, and relief can often be given. But the tendency grows all too readily to be content with the alleviation of the obvious, to fail to probe to ultimate causes, to forget the guiding rule *causa sublata, tollitur effectus*. Hence the relief of pain by analgesics, of insomnia by hypnotics, of debility by tonics, of dyspepsia by drugs alone, while the essential cause remains untouched. An associated tendency is that of routine. It is so much easier to do what one is accustomed to do than to follow on and develop new ideas. And this is an inevitable result of an experience which sees so many new ideas and suggestions fail to stand the test of time and yield their place again to old-established method. In the youth of practice one tries with enthusiasm every new proposition: in later years one waits to see if the new is to be permanent. But though there is reason for such attitude it is difficult to escape an undue conservatism, a blind adherence to established routine, and to avoid "the great tendency of the human mind to fall into a groove and pursue its work on lines that give no occasion for mental strain."[1]

A further danger is that which, for want of a better term, may be designated "staleness." Its occurrence calls to mind the teaching regarding summation of stimuli, that under the frequently recurring influence of electrical stimulation a muscle gradually reduces its response and finally fails to react further. It produces the failure of the most obvious diagnosis, and the feeling under which every difficulty is magnified, and "the grasshopper becomes a burden." It is not that knowledge is lacking, but that the tired mind fails to absorb the transmitted impression. Probably most practitioners in times of stress have realised this; well for them if, recognising the danger-signal, they can find relief in a well-earned rest.

A further danger associated with the fullness of the practitioner's life is that which may always follow excessive concentration on one subject—namely, a failure of interest in other spheres of life. It is illustrated by the fact that few general practitioners retire from practice: the majority die in harness. The reason, to a large extent, is that not many are able to lay aside the means to provide for later years; but a further reason is that work has been so absorbing that there has been too little opportunity for the cultivation of hobbies or outside interests, and thus without the interest of work life would be lacking in zest.

These seem to be the especial dangers of which a personal experience of general practice has brought cognisance. They are not all peculiar to the calling of the practitioner, but there are special features of his life which give them prominence. Herbert Spencer, in a criticism that education deals inadequately with the conduct of life, says that the question "Is it worth while?" is not asked with sufficient frequency, and emphasises that work exists for life rather than, what is the more currently expressed view, that life exists for work. To this question the practitioner of medicine cannot reply only from his own point of view: others may, perhaps, be in a better position to answer for him. But it may be well sometimes to ask the question and consider whether too heavy a price is not being paid, especially if the price may possibly involve the risk of deterioration in value.

SOME REQUIREMENTS OF THE GENERAL PRACTITIONER.

Every practitioner who has carried on practice for any considerable time must recognise that he is faced with special difficulties unknown to his predecessors. For them the years brought but slow advance in knowledge, and they were perforce in the main dependent upon their own developing experience. All this is altered; changes have been so revolutionary that no man, even of the widest experience, can feel that this alone is a sufficient equipment. Who amongst us who graduated even 20 years ago can pretend to an accurate knowledge of late developments? It is sufficient to state a few of these—the intricacies of cardiac diagnosis; the theories of immunity and vaccine therapy; the action of the internal secretions; the extended use of X rays; the diagnosis and treatment of syphilis; the various blood changes. It is impossible for the general practitioner with little leisure to be thoroughly conversant with all new work. Yet that he should have a working knowledge of it is essential. Many men, to their credit, strain every nerve to extend their knowledge and adaptability and to maintain themselves abreast of the times. Others give up the effort and two tragedies may occur: the tragedy of lives hazarded by imperfect diagnosis or treatment, the tragedy of practices lost to younger men with fresher knowledge.

It will thus be seen how essential it is that medical practice should be combined with continued study. The desirability of this will be generally admitted but its attainment is not easy. When once a man has developed a busy practice the demands on his time are so continuous, periods of leisure are so scanty, that opportunity for study is but limited. However laudable intentions may be, attainment of necessity lags behind.

There are three directions in which it would appear that this requirement might to a certain extent be met.

1. *Post-graduate Study.*

Facilities for such exist, but only a limited number of practitioners are able to avail themselves of these. Holidays from general practice are rare and refreshing, and no small degree of enthusiasm is needed to forgo such for the sake of study. And to leave a practice for any lengthened period is both costly and hazardous.

Some modifications of the present system seem worthy of consideration. The number of centres where post-graduate training has been developed is limited. The development of such work at other centres would be an advantage, especially if the work were so arranged as to be available to practitioners in the adjacent area without undue absence from practice. Many practitioners who would find it impossible to attend a prolonged session would make an effort to attend a short course—for example, a series of lectures on six or eight afternoons or evenings once a week; and in a specially adapted course much might be learnt in that limited time.

A further modification might be advisable as applicable for more rural areas where even the limited attendance above indicated would involve too long absence from home. There might be developed extension lectures in medicine, and a lecturer attend occasionally at a given centre in the country for the enlightenment and encouragement of the rural practitioner. True, such lectures could not be attended by a large number, and would not be directly remunerative to the lecturer, but their value might be very great.

Further, the hospitals might render very material assistance to the general practitioner by developing courses of clinical lectures at times adapted to his convenience. And especially would this be the case if use were made of hospitals not only in the recognised teaching centres, but also of those situated elsewhere.

Developments such as these would have far more than their direct teaching value. Medical men, who too seldom

[1] Mackenzie: "Interpretation of Symptoms."

meet in fellowship, would be brought together in the pursuit of knowledge. They would form contact with a larger sphere than that in which their daily work is often cast; their horizon would be extended and they would return to their work with a heightened interest and zest. With all its variety, even medical work is apt to become monotonous; there are times when the interest of the most zealous will pall, and his mind become stale: whatever will counteract such tendency is of value not only to the practitioner, but also to the community.

2. *Specialist Facilities.*

No practitioner can now have at his immediate disposal the whole equipment necessary for the adequate diagnosis and treatment of disease in accordance with modern requirements. Neither can any practitioner have the requisite knowledge to use such equipment in every variety. Where resources other than his own are required he must send the patient elsewhere, and often to a considerable distance. The advantage or disadvantage to the patient is not now under consideration, but the result to the practitioner is that with much more frequency than was formerly the case he must lose touch with his patient, even in the matter of diagnosis. The danger is lest he become a mere sieve for the sifting out of cases, and that those requiring refinement of diagnosis or technique pass beyond his ken. With such an issue his mental power must inevitably decline and his usefulness to the community diminish. Thus an extension of specialist facilities, so that there might be more ready access for the average general practitioner, would be a great boon. Especially is this true as regards the practitioner in the country or the small country town. The city practitioner has facilities at hand, and may have access to them when he will and if he will. His more isolated colleague is by his isolation handicapped; he may send a patient to be X rayed and have to be content with a photograph, which perhaps he does not understand; he may receive a detailed diagnosis of an obscure heart case, but know nothing of the technique involved; he may send a scraping of a chancre to a pathologist, but the spirochæte may be only a name. *Experto crede.*

The continuous development of the general practitioner, which is so essential, is impossible without an extension of facilities. But here, again, the middle course is the safest. To spoonfeed the practitioner, to encourage him to depend too exclusively on the resources of others, would be disaster. Isolation or semi-isolation is not without its advantages; it develops a resourcefulness and self-reliance which in many an instance are of more avail than the most up-to-date knowledge. Many a country doctor will perform, as part of his recognised routine, surgical operations which a London West End practitioner, in receipt probably of a much larger income, would consider as beyond his province.

3. *Medical Literature.*

Post-graduate studies have their place, specialist facilities have their place, but the main resource of all practitioners must be in medical literature. Research herein is again beset with difficulty. In the early years of practice there may be abundant, even too abundant, time for reading, but this suffers from not being brought to the bar of sufficient experience; in later years stress of work and scanty leisure allow little opportunity for study. Hence a tendency to depend upon the knowledge gained from accumulated individual experience without refreshment from other minds. Moreover, as years increase, there tends to be a less open mind, less adaptability to new impressions. Bacon has said:

> "For it is true that late learners cannot so well take the pile: Except it be in some Mindes that have not suffered themselves to fixe, but have kept themselves open and prepared to receive continuall Amendment, which is exceeding Rare."

This lessened pliability of mind reinforces the difficulty induced by diminished opportunity for study, and the tendency grows to be content with an occasional dip into a medical journal, and to leave aside deliberate and purposeful study.

It is not, however, from this point of view that the subject is mainly considered. These are the difficulties of the practitioner in approaching medical literature, but they are too often enhanced by the methods of presentation of such literature. The assistance which the practitioner seeks from books is mainly in two directions—clinical instruction which will help him in his daily round, and instruction in new developments. As regards the former there has been much improvement in recent years. Time was when there were only ponderous tomes, weighted with unrequired details, which had to be laboriously sifted in order to obtain the essential knowledge. The practitioner does not require the elaborate text-book, but the graphic presentation of the essentials of diagnosis, prognosis, and treatment—the clinical portrait. It is on the clinical lecture of his student days, impressed by the personality of his teacher, that his knowledge of practical medicine is really based, and it is the continuance of such vivid type of teaching that he still desires. That such literature is more in evidence is of good omen, but there is still a tendency to dwell unduly on the rare.

More difficulty is experienced in following writers in the later fields of research. Perhaps it is because much of the new work is done in the laboratory, but certain it is that the language in which it is expressed is often far from easy of comprehension. It must be difficult for those working in these fields, to whom new ideas and new terminology are current knowledge, to realise that many practitioners have yet the alphabet to learn of their science, and that what is to themselves a simple statement may be to others a maze of intricacy. But it would be well if writers were more adequately to visualise their audience, and study their expression and terminology, not from the point of view of those who write, but of those whom the writers address. No grown man expects to be fed on pap food, and it is always well to have some mental pabulum on which to bite hard; otherwise the thinking faculties may atrophy. But the more difficult a subject the more necessary that its exposition should be divorced from needless obscurity.

VIS MEDICATRIX NATURÆ.

One lesson, of principle rather than of detail, emerges from experience of general practice—namely, a recognition of what is involved in the *vis medicatrix naturæ*. As young practitioners we are apt to commence with a consciousness of knowledge, with a sense of our primary importance as agents; experience brings the recognition of a secondary place in waiting on and assisting the efforts of Nature. "Knowledge is proud because he knows so much, Wisdom is humble that he knows no more."

The objective manifestations of disease are often to be regarded, not necessarily as morbid processes, but as the efforts of Nature to be rid of a foreign element, to limit its activities, or to minimise its ill-effects. Pain is a warning; the rigidity of muscles is a protective effort; the effusion of serum is a separation of inflamed surfaces; the formation of pus is directed to the removal of a noxious agent; the swelling of glands is evidence of a defensive organisation; elevation of temperature is not necessarily an evil. Nature is always on the alert and resents disease in man. The recognition of that fact leads one to watch her efforts and to take a second place. It awakens the consciousness of an agency other than one's own, brings a realisation of power and law in coöperation with which lies one's sphere. It brings reliance on the common-place, on rest, on dieting, on fresh air, on sleep, on exercise, on the simple life. It emphasises the removal of hindrances to health as preferable to active interference when health has become unbalanced. Recognised by the medical attendant, the carrying out of this principle is often obstructed by patients or the friends of patients who exemplify the spirit of Naaman, who, wroth at the simple instruction to go and wash in the Jordan, demanded drama and that the Prophet should surely come to him and call on the name of the Lord and strike his hand over the place. Herein is an advantage that surgery has over medicine, that its action is so much more frequently immediate, direct, and impressive. And it is recognised, of course, that there are conditions, especially surgical emergencies, which constitute a violent disruption of Nature and call for prompt and primary interference.

All this does not mean that the policy of the practitioner is to be one of drift or wholly of masterly inactivity. That the healing of a fractured limb is Nature's work does not preclude the necessity of careful setting; that pneumonia runs a recognised course does not preclude the duty of relieving a struggling heart, or aerating the lungs, or watching for complications; that labour is a natural process does not preclude a timely assistance or direct intervention when Nature is obstructed. In no way are the

duties of the practitioner lessened; but his attitude and activities are modified when his position as Nature's servant is recognised. Indeed, rightly considered, this tenet conduces not to a policy of *laissez-faire* but of increased resourcefulness. The recognition that disease is not inherent stimulates to search the cause of any deviation from the normal: should a case of illness not run the recognised course it postulates the presence of an unexplained factor and probes for such; it produces dissatisfaction with issue other than recovery.

And this creed brings with it another tenet—that of a reasoned optimism. Realising that Nature has many assets which postpone bankruptcy, one learns in certain cases to hope almost against hope. So many patients have been seen who recover from desperate straits that experience justifies a caution in expressing pessimism. This optimism must not be unreasoned: there are indications which cannot be gainsaid, there are conditions in which experience tells that the final ending is inevitable, but short of such the attitude of hopefulness and patience is often justified. In both the aspects considered—of waiting on the powers of Nature and of hopefulness—it is refreshing to bear in mind some words of Ambroise Paré. If any man, judged by our knowledge, had grounds for pessimism, surely he. But through his own records there run like a refrain the words, testifying the humility of greatness, "I dressed his wounds and God healed him"; and in reference to one case he states: "I told him that there was still some hope because he was young, and God and Nature sometimes do things which seem to physicians and surgeons impossible."

And there is a wider optimism which argues that if disease is resented in the individual so is it resented in the community, that its general incidence is not inevitable, and that the reaction of the larger organism is directed to its removal. The past 50 years have witnessed a revolution in the attitude to disease, wrought more especially by the work of Pasteur and Lister. They countered the doctrine, and the hopelessness engendered of the doctrine, of an inherent tendency to disease, of a *contagium sui generis*, manifested by such views as that there was a "morbid spontaneity of the organism," that typhoid fever "is engendered by ourselves within ourselves," that there was "a spontaneous tuberculous degeneration of the organism," that the pyæmic infection was "tenacious and ineradicable," and that its source was to be found in "hospitalism." Pasteur wrote to Bastian:

"Do you know why I desire so much to fight and conquer you? It is because you are one of the principal adepts of a medical doctrine which I believe to be fatal to progress in the art of healing—the doctrine of the spontaneity of all disease."

This fatal doctrine has now gone, and a hopefulness has succeeded hopelessness. The counter doctrine is extending to fields wider than those of the infections, and the nature of causative factors is more generally recognised. But disease has been ever present, and familiarity therewith has bred the view of its inevitable occurrence. Inevitable it will be for a yet indefinite time. But the general practitioner who moves amongst various sections of the community, practising amongst the wealthy and the poor, amongst those well-fed and those under-nourished, amongst the well-housed and the ill-housed, amongst the over-worked and those capable of leisure, be they rich or poor, knows that the incidence of sickness and of types of disease varies according to the surroundings and circumstances of his *clientèle*. And experience justifies a reasoned optimism that with wider knowledge, a saner life, and a healthier environment the community will utimately escape from many ills which now seem inevitable.

ON PROFESSIONAL RELATIONS.

The peace and happiness of a medical man's life is largely influenced by his attitude to his fellow practitioners or their attitude to him. The writer's lot was cast, so far as professional relationships were concerned, amidst pleasant circumstances. He remembers no single incident of rancour or misunderstanding, and for this he thanks the example of older practitioners. There is no doubt that such an experience is not universal, and that professional relationship often leaves much to be desired. Osler, in one of his addresses, says "No sin will so easily beset you as uncharitableness towards your brother practitioner." Why should this be so?

The work of a general practitioner differs from most other callings in the personal relationship it establishes with patients; it is not a mere exchange of goods, a business transaction, not a mere giving of advice or a transient calling at a house, but a contact between individuals, an intimate reaction. Hence the severance of relation between doctor and patient cuts deeper than a similar severance in other spheres, and it is only reasonable to anticipate that it should create some heartburning. But it is unwise that it should be allowed to create bitterness. Just because the work so nearly touches human nature, and because human nature is so varied, is there the more scope for divergence. And it is unwisdom that secession should create animosity to the succeeding practitioner, but this is frequently the result. He is not of necessity a supplanter, and has not necessarily taken his place by devious and unprofessional ways. It is easy to blame the patient for whims and ingratitude, to blame the colleague for insidious advertisement, but a wiser rule is to consider in such case whether there has not been some error in one's own conduct or knowledge, and if this cannot be established to endeavour to cultivate a philosophic calm. After all, a patient has as much right to change his doctor as to change his grocer, and it would be well if this were more generally recognised. There are some words of Sir Benjamin Brodie in this respect which are worth remembering:—

"Taking all things into consideration it appears to me to be a question whether there is not, on the whole, more cause for wonder in the patience of the many than in the impatience of the few, and whether the gratitude of those who over-estimate our services does not even more than compensate for the neglect of those who withhold from us the credit which we really deserve."

Much depends upon the primary attitude to medical practice and its financial issue. Much sentiment has been uttered and written on the nobility and self-sacrifice of a doctor's work, sentiment which, to the credit of the profession, has often been justified. But a doctor has his obligations to meet as other men; he cannot educate his children on a reputation for philanthropy, nor live in old age on the memory of good deeds; he would not be human if he did not derive gratification from financial success. In any case, for the general practitioner such success is seldom proportionate to the strain involved, and it frequently arrives late, after years of penury and struggle. But there is all the difference in the world between a legitimate satisfaction in well-earned reward and a primary regard for the shekels. As an ultimate issue it is the difference between the love of work and the love of money; between the attitude which regards a patient as a person who is ill and the attitude which regards him as an individual who pays fees; between medicine viewed as a profession and medicine viewed as a commercial career. And if the fee aspect is unduly predominant there is an added likelihood of bitterness in the event of a patient severing relations. Competition is defined as "common strife for the same object"; if the object is the fee return it is obvious that what one gains another loses; if the object is the cure of the patient it really does not matter if the patient is cured by someone else so long as he is cured. Such detachment is not easy to attain, is probably only attainable by the few, but the pursuit of its attainment is a wise ideal. And after all, if patients never left us much needed stimulus would be lacking; a shock to equanimity and self-satisfaction is not without its value.

There is no work so individualistic as that of the general practitioner. Day by day he has to exercise his own judgment in vital matters; he is an autocrat whose word is law; he moves as it were in his own preserve, seldom challenged, responsible in his private practice to his patient and to himself alone. This individual and personal responsibility is one of the attractions of the practice of medicine. But it brings with it a tendency to come too little in contact with fellow-practitioners or to know them only as others engaged in their own special preserve. Anything which breaks down this tendency and brings medical men together, not as competitors but as participators in other spheres of life, is a great advantage; it brings the knowledge that the other man is not so bad a fellow after all, that he has human as well as professional interests and other objects in life than the purloining of patients.

SOME COMPENSATIONS.

I call to mind a Scottish country practitioner, who used to try to dissuade from the life of a general practitioner with the warning, "You are just a' body's body." "A' body's body," indeed, he was over a wide stretch of countryside. Years afterwards, meeting in a railway carriage far

from the neighbourhood a fellow traveller from the same district, to the question, "Do you know Dr. ——?" there came the reply, "Ken Dr. ——? Why, he brocht me intil the world, and he's the finest puir mon's doctor that ever breathed." I see him now, aged, retired, with shattered health, and indifferent means, an ending to his days far other than he has merited, but withal content, and, I think, not regretful that he has been "a' body's body." Another comes to memory who worked from youth to advanced years with almost unremitting toil, a man against whom no breath of evil whisper ever stirred, of whom I have heard it said, "If I had committed a murder I would go and tell Dr. ——." Such an attitude is the result of the human relationship, the penetration to the depths of human life, the intercourse with its sanctities and woes, which is inherent in the work of the practitioner and which is the compensation for the difficulties of his life. The life-work of most other callings is less intimate, controlled more by the "tyranny of mere things." I recollect an incident related by a colleague of his entry to a sick room, and of how the patient, putting down a book which he had in his hand, and which happened to be the Bible, made the comment, "It's only the doctor." The observation on the incident was that clergymen see men at their best, lawyers see men at their worst, while doctors see men as they are. It is this touch of nature, this human intimacy, which leads many patients to regard their doctor, not as professional adviser only, but as guide, philosopher, and friend, and to seek his advice on matters outside his immediate sphere.

The general practitioner has, indeed, abundant opportunity for the observation of human nature. He presides at birth and is sought in death, he knows of the skeleton which is hidden in most cupboards, he knows the tragedies which blast a life, and the minor discords which embitter it, he sees human virtue and human frailty, joy and sorrow, life in its seaminess and life in its excellence. Well for him if he can preserve a genial toleration for the frailties of mankind and the spirit of charity. The contrary might be expected: as it is put by the Shepherd in Noctes Ambrosianæ:

> "Physicians, ane might think, seein' folk deeing nicht and day in a' manner o' agonies, and bein' accustomed to pocket fees by the death-bed-side, would become in the core o' their hearts, as callous as custocks."

As a matter of fact, though doctors spend most of their time battling with the ills of life, there are surely few in whom this engenders any spirit of resentment against Fate: and this from no lack of sympathy. In the first place they view these ills not from the point of view of philosophic abstraction but as men who are engaged in the concrete work of overcoming them, and who derive satisfaction therefrom. A further reason is that if they see much of the ills of life they see also much of the good, if they see many shadows they see also much radiance. They witness the pangs of labour, but also the joy that a man-child is born into the world; they company death, but know that he seldom comes as the King of Terrors, but often as "the poor man's kindest friend"; they see a child stricken low, but also the heroism of the nursing mother; they see uncharity and selfishness and vice, but also charity and self-forgetfulness and virtue. Doctors could reveal better than most men the degradation and sorrow of which human nature is capable, but also its elevation and joy. It is well to be impressed by the latter while not forgetting the former. If practitioners might enrich medical literature by a more frequent detailing of their clinical experiences they might also rebuke pessimism by a record of their human experience. One incident among many comes to mind. I recollect a visit to the cottage of a rural labourer. I see now, strapped to a chair in the garden, a repulsive form with enormous head and stunted limbs, speechless, helpless as a new-born babe, a youth of 14 years, idiot from birth: I hear now the mother's anxious query, "Have you come to take him away?" and her quick addition, with hand uplifted in emphasis, "Sir, I would not part with that child, though you gave me all between earth and sky."

But apart from this general human touch it is questionable if there is any sphere of work which can bring the same sense of direct pleasure in its fruition. The French have a saying, "Une cure c'est une paternité." And to tend a patient through a severe illness, to see him smitten down in the midst of robust health, to watch the descent into the valley of the shadow of death, to realise all that is involved to those in anxious waiting, to watch again the gradual emergence to life and strength, and the final restoration; all this brings a sense of satisfaction which surely can be seldom rivalled by success in other callings.

It is not meant to imply that considerations such as these are the dominant factors in the practitioner's life. Perchance they only emerge when there is time and opportunity for reflection. It is a frailty of human nature to realise while engaged in a given occupation all the difficulties thereof, and to realise the advantages only when these are no longer at hand. And the difficulties of the general practitioner's life are obvious enough: stress of work, little opportunity for rest and recreation, frequent financial hardship, contact with folly and ingratitude, all indeed that is involved in being "a' body's body."

This intimacy of relationship has its concomitant danger in that it may tend to the submergence of the strictly professional aspect, and there is an element of truth in the warning, "Never have your friends among your patients." But, and more especially in country districts, this is a counsel of perfection. It may be difficult, but is not impossible, to be the doctor as well as the friend, and the harmonious merging of the two is one of the chief compensations of general practice. It was said of Lister:—

> "In early life Lister belonged to a Society the members of which called all men Friends, and now in turn because of his inestimable beneficence and service to mankind, all men the world over call him Friend."

Such an epitaph may not without fitness be applied to many members of the profession in less exalted spheres, who, if they have passed hence unsung, have not passed unhonoured or unwept.

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ACCIDENTAL HÆMORRHAGE IN CONNEXION WITH ECLAMPSISM.

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IN my opinion Schmorl was right when he stated that puerperal eclampsia is a definite disease peculiar to pregnant women and their infants, and characterised by peculiar pathological changes, consisting chiefly in thrombosis of blood-vessels, necrosis of the cellular elements of tissues, and hæmorrhages. Such conditions are, of course, met with in other diseases, but never so widely distributed, or involving so many important organs, as in eclampsia. They were found by Schmorl in all the necropsies on women who had died from eclampsia, and were considered by him to be essential to, and characteristic of, the disease; therefore, when they were present the case was one of eclampsia, when they were absent it was not. Subsequently he found the same pathological conditions in cases which had died in coma, but without any convulsions; therefore they also were cases of eclampsia, though they had no convulsions.

There can, I think, be no doubt that the so-called pre-eclampsic toxæmia is also essentially the same disease whether it culminates in fits or not; and since all these conditions are, therefore, examples of one and the same disease it is desirable that they should be grouped under one name. Eclampsia and toxæmia are not definite enough for the purpose, because the former is commonly applied to convulsions of all kinds and is hardly applicable to those cases in which there are none. Toxæmia, also, is unsatisfactory, because there are toxæmias which are not, as far as we know, in any way connected with eclampsia. Dr. Bar has suggested, and I think it an excellent suggestion, that whilst retaining the term eclampsia for the cases in which there are convulsions, we might employ the word "eclampsism" for those in which there are none.

Accidental Hæmorrhage.

One of the essential features of the disease, as I have already stated, is hæmorrhage; most frequently small petechial hæmorrhages, but occasionally very extensive, serious, and even fatal in amount. Anyone who has much experience of eclampsia must have met with such cases where the bleeding occurred into the brain, the eye, under the skin, or into the peritoneal cavity. But it is only recently that our attention has been called to the fact that

they occur into the uterus also; and the association of accidental hæmorrhage with eclampsia, or rather with eclampsism, has attracted notice. It would be impossible, in the present state of our knowledge, to say in what proportion of cases it occurs, but from personal experience I am inclined to believe that most of the cases of severe, and especially of concealed internal hæmorrhage are due to this disease.

Since Rigby taught us to distinguish accidental from unavoidable hæmorrhage our knowledge of its nature and treatment has developed slowly. We discovered in course of time that such hæmorrhages are frequently associated with albuminuria, and that those in which the effused blood is wholly, or almost altogether, retained are much more serious than those in which it escapes freely from the vagina. In attempting to explain these facts, however, it was assumed that the albuminuria resulted from a nephritis which, by causing endometritis, produced a diseased and loosely attached placenta. All that I believe to be erroneous, the condition of the kidneys is more necrotic than inflammatory and in the cases examined by Whitridge Williams there was no endometritis.

The treatment of concealed hæmorrhage by abdominal section originated with Dr. William Bagot, now of Denver, Colorado, when my assistant in the Rotunda Hospital, and was successfully carried out by him upon a patient in the extern maternity. But it was several years after that any other operator ventured to follow his example, and when in 1910 Dr. Amand Routh published a report upon 1280 cases of Cæsarean section, collected from obstetricians living in Great Britain and Ireland, it contained only three which had been done on account of accidental hæmorrhage. Since then, however, abdominal section has been resorted to more frequently, and is now, I believe, regarded as generally advisable in those cases, at least, in which the patient is not in labour, and the hæmorrhage is more or less concealed.

Pathological Conditions.

Since the introduction of this treatment which, in my opinion, marks a distinct epoch in obstetric history, we have learned that the actual conditions are very different from what we had imagined them to be. We knew, of course, that the placenta was detached from the placental site, and that the uterus was distended with blood; and we assumed, from the fact that the effused blood was not expelled, that there must have been a weakening or paralysis of its walls, but we had no idea, or a wrong one, as to its cause. Now we know that the blood is poured not into the uterine cavity alone but also into its muscular wall, which is suffused with blood, separating and no doubt injuring its muscle cells; sufficiently explaining not only the yielding of the uterus to the pressure of the blood, but also the extreme difficulty which has sometimes been experienced in controlling post-partum hæmorrhage. In many of the reported cases there was hæmorrhage also into the pelvic cellular tissue, especially between the folds of the broad ligaments, and in some into the peritoneal cavity.

In two cases reported by Whitridge Williams, in which the uterus had to be removed, the microscopic examination showed that the hæmorrhages had spread apart the individual muscular fibres and bands, and in places was associated with considerable œdema; apparently it was not connected with the larger vessels. Section through the placental site showed similar changes in the muscular wall, but the deciduæ were normal except for small hæmorrhagic areas. In this region many of the larger veins were almost completely filled with large thrombi, and many of the smaller veins were almost occluded with thrombi. The large arteries were normal, but many of the small ones presented changes in the intima, suggesting a mucoid change, and it projected into the lumen and in many places defects were observable in it.

The principal pathological conditions present, therefore, were thrombosis of veins, necroses of the intima of the small arteries, and hæmorrhages into and œdema of the uterine walls. This remarkable condition of the uterus has during the last few years been frequently noted by other observers in connexion with accidental hæmorrhage, and at a meeting of the Obstetrical Section of the Royal Society of Medicine in November, 1916, no fewer than eight cases were reported. In all of them in which the urine was examined it contained albumin; five had large hæmatomata in the broad ligaments and two free blood in the peritoneal cavity. In all of them not only was the placenta more or less detached and the uterine cavity filled with blood, but blood was also extravasated into the uterine wall, most markedly in the superficial layers, and especially under the peritoneal coat.

Causation.

Couvelaire described this condition as utero-placental apoplexy, and although he believed it to be a constant feature in accidental hæmorrhage, yet he regarded it as a result of over-distension of the uterus, and not as the cause. If he were correct in this assumption, and the hæmorrhages were merely the result of over-distension, then their connexion with eclampsia is not so obvious as I suppose it to be. But if, on the other hand, it can be proved that this condition is not caused by over-distension, that it only occurs in patients with other symptoms of toxæmia, and that the anatomical conditions associated with it closely resemble those which cause hæmorrhages in other parts of the body in eclampsia, then it would seem to me a justifiable conclusion that it is due to the same cause.

As regards the theory that the remarkable condition of the uterus is merely due to its over-distension I would refer to experiments carried out by Dr. Arthur N. Morse in Yale University Medical School.[1] His first endeavour was to discover whether sudden over-distension could produce such phenomena. With that object he exposed, by abdominal section, the uterus of a pregnant bitch, inserted a cannula into it, and injected saline solution until it was distended almost to bursting. No ill-effects excepting abortion followed, and when the abdomen was again opened, after 48 hours, the previously distended horn was found to be entirely normal, without any sign of injury. That experiment proved that even extreme and acute increase in intra-uterine pressure did not cause an extravasation of blood into the myometrium.

A further series of experiments was carried out with a view to ascertain what would be the results of venous obstruction in a pregnant uterus. He discovered that in pregnant rabbits, when all the veins returning blood from a pregnant horn had been ligated, it became deeply cyanosed and distended, at first fluctuant but ultimately firm, tense, and resistant to pressure. After about two to four hours it was enlarged to about twice its former size and was quiescent, muscular action having ceased. The uterine cavity was filled with blood, which surrounded the unruptured fœtal sacs; the placentæ were partially or completely separated from their attachment, and minute extravasations of blood were visible in the myometrium. The microscope showed hæmorrhagic extravasations in the decidua, and at various points in the uterine wall, as well as dissociation of the muscle fibres; in fact, in every particular an exact reproduction of the conditions found in cases of accidental hæmorrhage.

Illustrative Cases.

The following cases, which came under my notice during the past four years, support the contention that there is a close connexion between eclampsism and accidental hæmorrhage.

CASE 1.—Patient, admitted to the Rotunda Hospital in March, 1915, under Dr. E. H. Tweedy's care, was pregnant about seven months. Her face, legs, and thighs were œdematous. She complained of intense headache, dimness of vision, and vomiting; secreted very little urine, which contained numerous tube casts and became almost solid when boiled. The blood pressure was 200 mm. Hg; in fact, a typical example of the pre-eclamptic state. The usual treatment was adopted, under which she appeared to improve. But at the end of a week she suddenly complained of violent abdominal pain, and a bloody discharge, which was slight at first but gradually increased to a considerable hæmorrhage, escaped from the vulva. The vagina was plugged, but though it controlled the external hæmorrhage her general condition grew steadily worse. The abdomen appeared to become more distended and tender to pressure, and from her general symptoms it was evident that serious internal hæmorrhage was continuing.

On opening the abdomen a considerable quantity of free blood was found in its cavity, the source of which was discovered in the right broad ligament, and a ligature thrown around the ovarian vessels on that side prevented further loss. The uterus contained a large quantity of blood and a dead fœtus, which were removed by the ordinary classical Cæsarean operation, the uterus being left. There was no post-partum hæmorrhage, and she left the hospital in good health.

CASE 2.—Patient, aged 30, was admitted to the Rotunda Hospital on Sept. 1st, 1917, at 8.40 A.M. Her two previous pregnancies had terminated normally at full term, and on this occasion she had noticed nothing unusual until the previous evening, when she was seized with abdominal pain, and a feeling of distension, and she noticed an increase in the size of her abdomen. When admitted to the hospital she was in a collapsed condition, blanched, and cold; temperature 95·4° F.; pulse

[1] Surgery, Gynecology, and Obstetrics, February, 1918.

hardly to be felt. The uterus very hard and tender on palpation; no fœtal parts could be made out, no visible hæmorrhage, urine scanty, loaded with albumin, casts in large number, some pus and red blood cells.

It was decided to operate as soon as possible. When the abdomen was opened the uterus presented a remarkable appearance, dark, almost blue, in colour, with blood extravasation in patches over its surface, the peritoneal covering being in places raised in large blebs filled with blood, one of which upon the posterior surface had burst, the rent being about an inch in length; and there was free blood in the peritoneal cavity. When cut through the uterine wall showed blood extravasation throughout. The cavity was filled with blood and the placenta completely detached; the child, of course, was dead. After the uterus had been emptied and the wound closed in the usual manner it contracted well after a dose of pituitrin had been administered hypodermically. There was no post-partum hæmorrhage and she made a good recovery, the urine being free from albumin before she left the hospital.

CASE 3.—Patient, aged 39, 9-para, 36 weeks pregnant, was sent to the Rotunda Hospital by Dr. T. W. Rice, of Portarlington, and admitted on Dec. 7th, 1917. Twelve years previously her first pregnancy terminated prematurely at the eighth month owing to eclampsia, preceded by headaches and disordered vision, and since then the sight in her left eye had been impaired. She had convulsions and was unconscious for a week; the child was stillborn. The four succeeding pregnancies were normal and the children lived. But after the birth of the last child she did not make a satisfactory recovery, and had subsequently three abortions.

On admission the patient said that she had been ill for about three weeks, suffering from headaches and impaired vision. There was a large ecchymosis on the left buttock. Her urine was scanty and of a bright-red colour, and contained a large quantity of blood and tube-casts. The child could be easily palpated, its head presenting in the first position. The diagnosis was pre-eclamptic toxæmia, and she was treated in the manner formulated by Dr. Tweedy, and which has been adopted as a routine in the Rotunda Hospital for some years; nothing was given by the mouth but water and bicarbonate of soda. She got little sleep in spite of a hypodermic of morphia, and the total quantity of urine passed in the first 24 hours was 20 oz. and the blood pressure was 260 mm.

The following day there was no improvement, and some twitching in the muscles of her arms, for which she was given ¼ gr. morphia. During the following days there was little change in her condition until the sixth day, when she seemed to be rather better and had passed 31 oz. of urine during the previous 24 hours, but in quality it was the same, and the blood pressure was still 250 mm. Considering that she had been restricted to soda and water for five days since her admission to hospital and that she said that she had eaten nothing for two days before, I thought it advisable to give her some nourishment, so at 12.30 P.M. she took 4 oz. of milk with an equal quantity of barley-water. At 1.10 P.M. she complained of a violent pain in her abdomen and said that she could see nothing. She looked pale and collapsed. Her skin felt cold and clammy and was bathed in perspiration. The temperature was below normal and a little reddish discharge flowed from the vulva. Her abdomen was evidently larger, the uterus swollen, hard, and tender, and the fœtus no longer palpable. Her condition appeared to be almost hopeless, but being persuaded that her life could be saved in no other way, I determined to operate immediately.

The abdomen having been opened, the uterus presented the same remarkable appearance which I have already described, being much distended, of a dark bluish-purple colour, with numerous patches of ecchymosis on its surface. The wall when cut through showed blood extravasated throughout its substance. The placenta was completely detached, the cavity full of blood and clots, and the fœtus was dead. To save time, which appeared to be of vital importance, I closed the uterine wound with a running suture of chromicised gut; otherwise the operation was carried out in the usual manner. Towards its close the patient appeared to be dead, but with the aid of pituitrin and other restoratives she gradually came round and was removed to bed.

The patient made a good recovery, although in consequence of her toxæmic condition we thought it advisable for three days more to give her nothing but soda and water. After delivery the urine rapidly improved both in quantity and quality, so that on the fourth day it was normal in colour and free from albumin.

Comments on Cases.

I have not reported these cases as exceptional, but, on the contrary, as being such as are generally met with in cases of severe accidental hæmorrhage. I believe that the detachment of the placenta and the hæmorrhage in such cases are caused by thrombosis of the veins of the placental site, probably due to toxæmia, and that the disease is the same as that which causes puerperal convulsions.

Those are the chief points that I wish to emphasise, but there are two others to which I shall allude. One is that in none of the cases was it necessary to remove the uterus—indeed, had I done so in the third I am certain she could not have recovered; and the other as regards dietary. It is generally believed that a milk diet is necessary in these cases, and there is no doubt that it is better than any other kind of food. But Dr. Tweedy maintains—and I agree with him—that water only is much better even than milk, and the fact, which I have noted in the third case, that serious aggravation of the patient's condition has followed the ingestion of even a small quantity of milk has been observed by us on several occasions. In answer to the question as to how long a patient can be restricted to water alone I would call attention to the fact that this woman had nothing, with the exception of 8 ounces of barley-water and milk, but soda and water for eight and possibly for ten days, and yet she recovered.

Dublin.

THE DIFFERENTIAL DIAGNOSIS OF AMŒBIC AND BACILLARY DYSENTERY FROM THE BLOOD.

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THE early, and at the same time correct, differentiation of amœbic and bacillary dysentery is a matter of very considerable importance from the point of view of treatment; for whereas in amœbic dysentery it may be possible to withhold emetine for a few days without any dire result, in bacillary dysentery it is certainly inadmissible to delay the administration of serum. Unfortunately, the present diagnostic methods of dysentery are by no means simple; they take up a considerable time, require a certain amount of skill, and presuppose the existence of a well-equipped laboratory. On active service these conditions are not always obtainable.

In the present paper an attempt has been made to arrive at a simple method of differential diagnosis from an examination of the blood alone. It must in the first place be remembered that the underlying pathology of amœbic and bacillary dysentery is absolutely dissimilar. The former condition is produced by the action of a protozoon which by means of a proteolytic enzyme sets up a colliquative necrosis of the tissues in its immediate vicinity, the latter condition is of the nature of a well-marked bacillary toxæmia.

Description of Tests.

In the differentiation of amœbic and bacillary types of dysentery the two following reactions have been used: (1) the iodine reaction in the polymorphonuclear leucocytes; (2) the production of nuclear pseudopodia in the polymorphonuclear leucocytes.

1. It has long been known that in certain pathological conditions the polymorphs, when treated with dilute iodine in dry blood films, give a glycogen reaction, but it is only recently that Bond[1] and others have shown that even in health a large proportion of the white blood corpuscles normally give under certain conditions a reaction with iodine which is closely related to the glycogen reaction met with in certain diseases. When normal white blood cells are incubated for a quarter of an hour at 37° C. and are subsequently treated with a 1 per cent. solution of iodine in water and potassium iodide a certain number of the white cells show the presence of one or more mauve-coloured droplets. These droplets gradually coalesce to form one large drop, which eventually breaks the lining membrane of the cell and escapes into the surrounding medium. The particular cells which show the presence of this iodophile substance are certain of the polymorph leucocytes. The actual technique for the demonstration of the iodine reaction is as follows:—

A drop of blood from the finger is placed in a Ponder's plasticine cell[2] and incubated for one hour at 37° C. During incubation the white blood corpuscles pass out from the clot and adhere to the cover-glass above and the slide beneath. The cover-glass and cell are then removed and the clot is washed away with normal saline. Two films of leucocytes are thus obtained, which are mounted in the 1 per cent. solution of iodine in potassium iodide. All the cells in contact with the iodine take on a yellowish tint, but, as before mentioned, certain of them show the presence of mauve globules in the protoplasm. In the normal individual the number of cells giving the reaction is roughly 50–60 per cent. Bond, however, has pointed out that in conditions associated with the presence of bacillary toxins in the blood the amount of iodophile substance is increased, as there is a large increase not only in the number of cells actually giving the reaction, but also in the amount of iodophile substance present in the individual cells. This increased iodine reaction persists in the blood for a fortnight or three weeks after the disappearance of the active symptoms of the disease. Applying the above reaction to the case of bacillary dysentery, it is found that the number of white cells giving the iodine reaction is 60–80 per cent., while the increase in the amount of iodophile substance is also well brought out. By this means, therefore, we have a method, with certain reservations, of determining whether the dysenteric infection is due to a bacillus or not. It is necessary, however, to exclude any recent septic infection, such as a sore-throat or whitlow, since such a condition produces a similar iodophile condition in the blood.

In one of the earliest cases examined—an amœbic infection—the blood gave a well-marked iodine reaction, a

phenomenon only explained when it was found that the patient had a suppurating venereal bubo in the groin.

In addition, in long-standing amœbic infections where there is secondary bacillary infection the blood may also give a well-marked iodine reaction.

2. The formation of nuclear pseudopodia. An examination of a large number of polymorph leucocytes derived from healthy individuals reveals the fact that in a very small percentage of cells the nuclei are furnished with finger-like processes, or pseudopodia. These processes are usually classified into three types: (1) pyriform; (2) blunt or sessile; (3) spiculated. The cause of the formation of these pseudopodia is at present unknown, except in so far as they appear to be due to active nitrogenous metabolism.

Gruner,[3] who has studied their production, has found that they are produced by a purin-containing diet, while they are also numerous in carcinoma, except in those cases where the tumour is so circumscribed that the cancerous excreta cannot enter the blood stream. An examination of the blood films from cases of amœbic dysentery reveals the fact that in this condition also there is a large increase in the production of nuclear pseudopodia. This increase is noticeable on the second or third day of the disease. Thus in amœbic dysentery the percentage of polymorphs with pseudopodia was found to vary from 12·5 per cent. to 52 per cent., the average being 18 per cent., while in bacillary dysentery the percentage obtained varied from 0 to 11. Out of 50 cases of bacillary dysentery examined the percentage of polymorphs with nuclear pseudopodia was in no instance above 12. It is interesting to note that in two cases of liver abscess without any dysenteric symptoms the number of cells with nuclear pseudopodia was 25 per cent. and 27 per cent. respectively.

A very large number of blood films from various pathological conditions have been examined for the production of nuclear pseudopodia, with the result that the only other condition in which the change could be found was chronic tuberculosis of the lungs. Provided, therefore, that the patient is living on a purin-free diet and that it is possible to exclude cancer and pulmonary tuberculosis, the formation of nuclear pseudopodia in a case of dysentery is highly suggestive of an amoebic infection.

Conclusion.

Taken in conjunction, the two tests above described enable an accurate diagnosis of the type of dysentery to be given at an early stage of the disease in at least 90 per cent. of cases. The occurrence of a well-marked iodine reaction without the formation of nuclear pseudopodia is suggestive of a bacillary infection, while the absence of the iodine reaction and the presence of nuclear pseudopodia naturally point to an amœbic origin. Should a well-marked iodine reaction occur in conjunction with the formation of nuclear pseudopodia the possibility of a mixed infection should not be overlooked.

References.—1. Bond: The Influence of Antiseptics on the Activities of Leucocytes and on the Healing of Wounds, Part III., Brit. Med. Jour., Feb. 3rd, 1917. 2. Ponder: THE LANCET, Dec. 12th, 1908. 3. Gruner: The Leucocytes in Malignant Disease, British Journal of Surgery, vol. iii., No. 2.

NASAL OBSTRUCTION IN AVIATORS.

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THE science of aeronautical medicine is still in its infancy. Researches pursued in various directions have proved that the successful pilot must possess a sound heart and sound lungs, a stable nervous system and a healthy "mentality."

Scarcely less important is the possession of good binocular vision and of normal ears. The ear-mechanism obviously becomes a more essential factor in flying when we remember to regard the ear not only as the organ of hearing but as an accessory organ of equilibration. Although the aviator depends mainly on his sense of vision it is, perhaps, a matter of regret that the sense of equilibration, a sense so highly developed in birds, and so readily accurately estimated in man by the Bàràny tests, has received so little attention from those who have, in this country, studied the medical aspects of aviation. Into the rationale of those tests and their relationship to aviation I do not propose to enter in this short paper, but would merely refer to one aspect of the subject which is well worthy of notice—i.e., the question of nasal obstruction.

To the flying man free nasal respiration is an important asset. The statement will meet with general acceptance, though the reasoning on which it is based may not be so widely understood. During the past few months I have had occasion to examine and operate upon a considerable number of officers and cadets suffering from nasal obstruction, and although I have followed the subsequent flying history in only a few instances certain interesting facts have come to light.

Results of Nasal Obstruction.

The main conclusions regarding the baneful effects of nasal obstruction on the aviator may be summarised as follows:—

1. *Effect on the lungs.*—The mouth-breather cannot satisfactorily expand his chest, and his lungs are never sufficiently aerated. Mendel has demonstrated experimentally the inferiority of respiration by the mouth and has shown that the amount of air which the mouth-breather inhales with each breath is less by one-fifth than the amount inhaled in normal nasal respiration. It follows, then, that if the subject be an aviator he will readily suffer from symptoms of "oxygen-want." This aspect of "oxygen-want" probably deserves further investigation.

2. *Effect of equilibration.*—The Eustachian tubes, the function of which is to adjust the pressure of air within the middle ear to the changes produced by sound-waves, atmospheric pressure, &c., and which come into use so largely during flying, are impaired in their function if any nasal obstruction is present. During a rapid descent the tympanic membranes are driven inwards by atmospheric pressure, causing deafness and earache. Normally those symptoms disappear if the ears are "inflated" by swallowing or by movement of the jaw. But if the nasal passages be blocked so that air does not freely reach the Eustachian tubes the alteration of pressure within the middle ear cannot be compensated and the symptoms persist, perhaps with the addition of giddiness caused by altered labyrinthine tension, communicated from middle to inner ear through the round and oval windows. Under such circumstances the risk of a crash is, naturally, considerable.

3. "*Reflex*" *effects.*—A third possible result of nasal obstruction is headache coming on in the air or after landing. This is in many cases due to the pressure of a deflected nasal septum against the middle turbinal, the so-called reflex nasal headache. Headache of this type is, of course, not peculiar to aviators, but is aggravated by flying for reasons to be presently described.

Causes of Nasal Obstruction.

The commoner causes of nasal obstruction are adenoids, hypertrophic rhinitis, and septal deviations.

Polypi were encountered on only one occasion in the present series. Adenoids were present in many cases, accompanied, as a rule, by enlarged and septic tonsils, but in few cases were the postnasal growths so large as to cause much nasal obstruction. They were, however, liable to attacks of inflammation, and then the Eustachian tube became blocked, not by adenoid tissue, but by the mucus and pus which that tissue secreted.

Hypertrophic rhinitis, affecting the anterior or posterior ends of the lower turbinal, was fairly common and was readily cured by partial turbinectomy.

Deformities of the nasal septum were the cause of the obstruction in the majority of cases. As a rule the patient gave a history of former injury at boxing or football. Some of those definitely traumatic cases had almost complete obstruction of both nostrils. In others the symptoms were nil, and the patient was unaware of any nasal trouble until he came before the examining board.

Aggravated cases of septal deformity naturally call for treatment before the subject can be passed as fit for flying, but the wisdom of operating on minor degrees of septal deviation in cadets is questionable. Absolute symmetry of the septum nasi is a rarity among civilised races, and an examination of over 2000 skulls has revealed deformity of the bony septum in 75 per cent. (Morell Mackenzie). At the same time it is to be noted that *a degree of nasal obstruction which would cause little trouble on the ground may be very troublesome in the air.* At heights over 7000 to 10,000 feet the mucous membrane of the nose becomes swollen and engorged, and any existing obstruction is thus greatly aggravated.

This is borne out by the following typical reply to an inquiry addressed to one of the patients: "Before the operation," he writes, "I was compelled, when flying, to breathe through my mouth; this was difficult to do and was irritating to the throat, especially when I flew a fast scout at heights over 8000 feet and in cold weather. The operation has cured

this trouble, and I have since flown at 12,000 feet and over with no difficulty whatever."

Treatment.

The treatment of the cases in question is a matter of some importance. The main object, from a military point of view, is to render the patient fit as rapidly as possible. To this end it is advisable to employ local anæsthesia for septum cases. A method which answers well is to pack both nasal cavities half an hour before operation with 10 per cent. cocaine, and at the same time give a hypodermic of morphine and atropine. The patient complains of little discomfort during the submucous resection, even if one has to gouge away part of the maxillary crest.

After-treatment consists in packing both sides with ribbon gauze wrung out of liquid paraffin, a dressing which adapts itself to the tissues and is easily removed on the following day. Treated in this way septum cases need remain in hospital for only a few days.

In conclusion, it may be remarked that while commercial aviation will naturally impose much less strain upon the pilot than "war" flying, nevertheless the medical problems of aeronautics should be studied more, and more in the future, and it is only by attention to such minor details as those indicated above that knowledge can be advanced and tests standardised. Aviation can only be developed on a sound footing by the mutual researches of the designer, the mechanic, the pilot, and the doctor.

POST-INFLUENZAL HÆMOPTYSIS.

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ATTENTION has been drawn to the occurrence of epistaxis and other hæmorrhages in the recent epidemic of influenza, and there has also been a large group of cases in which hæmoptysis occurs which may readily be mistaken for pulmonary tuberculosis. These cases are often puzzling and may lead to erroneous diagnosis, and have to be carefully differentiated from those cases which drift almost insensibly from influenza into acute pulmonary tuberculosis.

As a rule the hæmoptysis in influenzal cases commences towards the end of the illness, when there is slight cough, an increasing weight, and no great tendency to wasting. The sputum shows a bright red staining, and not the typical rusty tint of acute pneumonia. Pneumococci are the predominant organisms and tubercle bacilli are absent.

The characteristic physical signs are generally marked by their bilateral posterior distribution in the suprascapular areas, where breath sounds are faint and moist granular adventitious sounds are abundant, with no bronchial breathing and some bilateral impairment of the percussion note. The corresponding areas in front show little or no change, excepting some lack of resonance on percussion. The mid-area of the lungs posteriorly is fairly clear, but the bases show congestive crepitation on both sides.

The temperature for a time is irregular and fluctuating, and the pulse-rate not so rapid as would be the case in a tubercular bacillary toxæmia corresponding to similar physical signs.

Careful observation of these cases for a few weeks will show subsidence of physical signs and temperature, with increasing weight and improved general condition. If, therefore, with slight hæmoptysis the physical signs are bilateral and chiefly marked posteriorly it is well not to be too precipitate in diagnosing pulmonary tuberculosis, but to make frequent examinations of the chest and sputum while taking the general progress of the case into consideration. Many of these cases have proved to be pneumococcal and transient, and a hasty diagnosis of tuberculosis on the ground of hæmorrhage may cause considerable distress.

As regards the physical signs the converse also holds good, and monolateral anterior signs with hæmoptysis give rise to much more suspicion of early pulmonary tuberculosis, particularly with no regain of weight on convalescence, rapid pulse, and night sweats.

So many cases of each type have come under the writer's notice during the last 12 months that he hopes these notes taken from his cases may be some guide to others when diagnosis is doubtful.

NOTE ON *STAPHYLOCOCCUS AUREUS* SEPTICÆMIA AS A COMPLICATION OF INFLUENZA IN AN EPIDEMIC IN MALTA.

BY ADAM PATRICK, M.D. GLASG.,
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With a Note by Colonel Sir A. GARROD, K.C.M.G., A.M.S.

IN the bacteriological examination of a number of cases of influenza and broncho-pneumonia which have come under treatment in military hospitals in Malta it has become increasingly apparent that in this epidemic a secondary infection with *Staphylococcus aureus* is a not infrequent and a very serious complication. Attention was first directed to this point by the post-mortem findings in the case of a soldier who died on July 5th.

After this condition was recognised it was seen that the cases in which *Staphylococcus aureus* was found were frequently those of a severe type of broncho-pneumonia, with characteristic symptoms. I am greatly indebted to Colonel Sir A. Garrod for the following note descriptive of cases of this type:—

Note on Symptomatology by Colonel Sir A. GARROD.

"In the present epidemic of influenza in Malta the cases have been, for the most part, of a mild character, but amongst them, as always, cases of broncho-pneumonia have occurred and a small proportion of deaths. In a number of cases there have been pulmonary troubles of a peculiar kind, such as I have not seen in previous epidemics. Such cases occurred chiefly in groups of men coming from special centres.

These patients present a well-defined clinical picture, unlike that of ordinary influenzal pneumonia. After the subsidence of a short primary fever the temperature rises again, and the condition of the sufferer suddenly becomes grave. He acquires a cyanotic tint, his breathing becomes shallow and very rapid, from 40 to 60 respirations per minute. He is anxious about his state at first and begs to be put out into the open air, but later he becomes apathetic, drowsy, and appears not to hear what is said to him. He may lapse into coma, with picking at the bedclothes, or may even develop a condition of coma-vigil. Delirium of a muttering kind, or even of more active form, usually preceded the onset of coma. On the other hand, some patients remain conscious and anxious throughout, convinced that they are going to die.

The pulse is rapid and the temperature high, reaching 104° F. in some cases, 105° in a few. The tongue is dry and covered with a thick brown fur, and its clearing is one of the earliest signs of improvement. The sputum is almost invariably rusty or pink during the attack, and in some cases there is definite hæmoptysis. The spleen is sometimes enlarged, but I fancy that this is an outcome of local conditions. The urine usually contains albumin, a trace to a dense cloud. The physical signs are scanty considering the conspicuous embarrassment of breathing. Large areas of impaired resonance or dullness, chiefly over the lower lobes behind, and scattered crepitations, and sometimes pleural friction are the usual signs. Bronchial breathing is not usually heard. The temperature may maintain an even high level or may fall suddenly with symptoms of collapse, only to rise again in a few hours. Death may occur during an attack of collapse, but more often is ushered in by steadily increasing dyspnœa with increasing cyanosis.

The whole clinical picture is that of gradual suffocation. The pulse seldom fails seriously before the approach of death unless there be an attack of collapse. The cases recall those rare examples of acute œdema of the lungs in children, and, as Professor Zammit first pointed out to us, general œdema of the lungs is found post mortem. In cases ending in recovery the temperature falls by somewhat rapid lysis commencing on the eighth or ninth day of the secondary fever. The rate of respiration falls gradually, the colour improves. In some cases the sputum remains rusty for some days after the temperature falls."

Bacteriological Examination of Sputum.

The sputum of 50 patients with influenzal broncho-pneumonia has been examined bacteriologically (Table I.) Nine of these 50 patients died, and *Staphylococcus aureus* had been found in the sputum of seven of them. The nine others who had shown staphylococcus recovered, though

TABLE I.—*Organisms found in the Sputum of 50 Patients with Broncho-pneumonia.*

Organism.	Times found.	Organism.	Times found.
Pneumococcus	45	Spirochæte (Vincent type)..	6
Micrococcus catarrhalis ...	22	Gram-positive cocci (other than above)...	5
Streptococcus	21	Yeast	2
Sarcina	18	*B. influenzæ*	1
Staphylococcus aureus	16	*B. septus*	1
Gram negative bacillus ...	13		

several had a severe attack. The amount of this organism grown from the sputum of the fatal cases varied, being sometimes a small growth mixed with other organisms, and once an abundant pure culture.

Post-mortem Findings.

The bodies of six of the nine patients who died, and also the bodies of five others in whose case the sputum had not been investigated, were examined post mortem. Of these 11, nine gave evidence of staphylococcus septicæmia. In the two other cases staphylococcus was obviously not the cause of death. The post-mortem findings may be summarised.

The lungs of the nine staphylococcus cases showed broncho-pneumonia, not always extensive, but there was widespread congestion and noticeable œdema. No considerable area of lung tissue was found pink and spongy. The œdema tended to affect not only the pneumonic portions of the lungs but also those parts which remained unconsolidated. On section of the lungs a watery, frothy, slightly blood-tinged fluid exuded on slight pressure. In one case the amount of this fluid was excessive, and the lungs weighed 50 oz. and 42½ oz. respectively.

The broncho-pneumonic areas were not densely consolidated, but the process had a special tendency to go on towards abscess formation, and four stages could be distinguished:—

1. Broncho-pneumonia present, but consolidation not very firm; lung dark brownish-red on section; cut surface smooth: exudation of slightly blood-stained watery fluid on pressure.

2. Surface of cut lobule coarsely granular, and slightly raised from surrounding area of lung, but not quite so dark in colour as in stage 1; exudation of œdematous fluid on pressure, but in addition appearance of beads of pus in the cut bronchioles.

3. Cut surface very distinctly raised and coarsely granular, with numerous miliary abscesses visible in the substance.

4. Lung tissue largely destroyed and lobule converted into a collection of abscesses separated by fibrous septa.

The distribution of these stages was lobular and a sharp line of demarcation could be made out between stages 1, 2, and 3 on the cut surface. The broncho-pneumonic process tended to involve especially the greater portion of the lower lobes, and the inner half of the upper lobes. The lower anterior edge of the lower lobe was nearly always spongy. In most of the cases the process had not progressed as far as the formation of visible abscesses. In six out of the nine there was no obvious evidence of pus, but abscesses were present in some part of the lungs in the three others.

Three cases showed empyemata, from all of which *Staphylococcus aureus* was obtained in pure culture. In a case with double empyema smears of the pus showed pneumococci on one side and pneumococci and streptococci on the other, but the only growth on culture was of staphylococcus.

The spleen was generally enlarged, in one case weighing 14 oz. and in two others 13 oz. The substance, as a rule, was of normal consistence and appearance. In the case of a patient with well-developed abscesses in the left upper lobe it was small (2½ oz.), pale, and soft. Considerable œdema was sometimes observed in the liver. The condition of the other organs called for no remark.

Two other cases remain to be mentioned.

In one of these there was considerable abscess formation and œdema in both lungs and their general appearance resembled that of the staphylococcus cases, except that the consolidated areas were denser than in any of them. Very numerous pneumococci had been found in the sputum during life and after death extensive acute pleurisy was found, with unmixed pneumococci in the fibrinous exudate. Pneumococcus, sometimes mixed with a Gram-negative bacillus, was grown from most of the organs. It was isolated in pure culture from the spleen. A few colonies of *Staphylococcus aureus* were grown from the right lung, but the pus formation and the septicæmia could not be attributed to it. This patient was already ill when he arrived on the Island, and it was not certain, though probable, that he was suffering from influenza. Clinically he had been regarded as different from the staphylococcus cases.

In the other fatal case in which staphylococcus was not found the appearance of the lungs was quite different. There were about 2 oz. of pus in the left pleural cavity, and the lower lobe of each lung was deeply congested and in a state of splenisation. The distribution of the consolidation was lobular. The right upper and middle lobes and the left upper lobe were light pink in colour and showed no congestion or œdema. Streptococcus in pure culture was grown from the left lower lobe and streptococcus mixed with a few sarcinæ from the right lower lobe and the empyema.

Table II. shows the result of cultures from organs in the 11 cases, and also whether *Staphylococcus aureus* had been found in the sputum during life.

In four cases in which it was estimated the leucocyte count was rather low—4000 (staphylococcus case), 7800, 6800 (staphylococcus case), and 6800 per c.mm. Blood cultures were taken from five patients and no growth resulted in any. One of these was made two days before death in a case in which staphylococcus was afterwards found in the heart blood.

Staphylococcus aureus is rather a rare organism in the respiratory tract, and in ordinary circumstances the tissues seem to have adequate powers of resisting it. It is not so with some of these cases of influenza, in which the sequence of events emphasises the fact that when conditions are favourable to its dissemination throughout the body *Staphylococcus aureus* is an organism of great malignancy. The examination of the sputum in most cases of broncho-pneumonia gives little information, but the results of this short series show that in influenzal broncho-pneumonia it may be of some value in estimating the prognosis.

TABLE II.—*Cultures from Organs in 11 Fatal Cases of Broncho-pneumonia.*

Organ.	Case.										
	1	2	3	4	5	6	7	8	9	10	11
Heart blood	S.[1]	S.[1]	S.[1]	—	—	—	S.[2]	—	S.	Pn.	...
Right lung	S.[1]	S.	S.	S.	—	S.	S.	Str.[4]	S.	Pn.,S	S.[3]
Left lung	...	..	...	S.	S.[2]	S.	S.	Str.	S.	Pn.[3]	S.[3]
Right pleural cavity	...	...	...	...	...	...	—	...	Sar.	...	...
Left pleural cavity	...	...	...	...	...	S.	S.	Str.	S.	Bac.	...
Spleen	S.	S.	S.	S.	—	S.	S.[3]	—	—	Pn.	...
Liver	...	...	S.	S.	S.	S.	S.[3]	—	—	Bac.	S.[3]
Gall-bladder	—	S.	S	—	—	—	—	—	—	—	—
Right kidney ...	...	...	S.	S.	—	S.	S.	—	—	Pn.[3]	...
Left kidney	...	...	...	S.	—	—	—	—	—	Pn.[3]	S.
Sputum (during life)	...	...	S.	S.[5]	...	S.[5]	S.[5]	No S.	S.[5]	No S.	...

Organisms found in pure culture except where otherwise stated.

S. = *Staphylococcus aureus*. Str. = Streptococcus. Pn. = Pneumococcus. Sar. = Sarcina. Bac. = Gram-negative bacillus. — = No growth.

[1] Almost pure culture. [2] Mixed with pneumococcus. [3] With a Gram-negative bacillus in small numbers. [4] With a few sarcinæ. [5] With other organisms.

ON SOME SIMPLY PREPARED CULTURE MEDIA FOR *B. INFLUENZÆ*

WITH A NOTE REGARDING THE AGGLUTINATION REACTION OF SERA FROM PATIENTS SUFFERING FROM INFLUENZA TO THIS BACILLUS.

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THE traditional text-book method for the growth of *B. influenzæ* was agar to which a certain amount of fresh blood or blood corpuscles had been added. On such a medium *B. influenzæ* showed very tiny pin-point colonies sometimes very difficult to see with the naked eye. More recent investigations have shown that much more copious growths can be obtained when the added blood has been altered in various ways.

Fitzgerald and Cohen (*Centralblatt für Bacteriologie*, 1911) obtained greatly enhanced growths by heating the blood to 80° C. for three minutes.

Matthews (THE LANCET, July 27th, 1918) showed that very profuse growths occur when the blood has been digested with an excess of trypsin for five days at 37° C.

Levinthal (quoted in the October number of the "Medical Supplement to the Daily Review of the Foreign Press") obtained profuse cultures by adding blood to agar in the proportion of 1 to 20, then boiling and filtering the medium.

The object of the present communication is to emphasise the advantages of blood altered in various ways on the growth of *B. influenzæ* and to indicate certain very simply prepared media on which enormous growths can be obtained. The author has had the opportunity of seeing and making many cultures of *B. influenzæ* on agar with blood digested with trypsin, as for some years at St. Mary's Hospital all our *B. influenzæ* vaccine was made from cultures on this medium, and there is no doubt as to the wonderfully profuse growths which can be obtained from its use. The preparation of the medium is, however, cumbersome, as it takes four or five days for the trypsin to produce the necessary change in the blood. It is thus impracticable to use such a medium if it is desired to make cultures of *B. influenzæ* without previous warning unless a stock of the medium is kept on hand. It also requires sterile blood and sterile trypsin, which are not always to hand. It would be of considerable advantage, therefore, if the same profuse growth could be obtained on a medium which could be prepared on the spur of the moment and which did not necessitate the use of materials not readily obtainable. The following observations show that this can be done.

Blood boiled in agar.—If blood is added to a tube of agar and boiled for one minute the whole of the colouring matter of the blood and the coagulable proteid is precipitated in masses. The tube can then be sloped, and before the agar cools sufficiently to become solid the whole of this precipitate will have settled to the bottom, leaving the upper part of the medium clear. If *B. influenzæ* is planted on this an enormous growth results. The same result is obtained if blood corpuscles only are used.

The amount of blood which it is necessary to add is indicated in Table I.

TABLE I.—Blood added to 5 c.cm. agar, boiled, cooled, and planted with *B. influenzæ*.

Amount of blood added.	Resultant growth.
0·25 c.cm.	Copious confluent growth.
0·12 ,,	,, ,, ,, (not quite so heavy).
0·06 ,,	,, ,, ,, ,, ,,
0·03 ,,	,, (colonies like streptococcus).
0·01 ,,	Colonies small and growth scanty.
0·005 ,,	No visible growth.

Blood boiled with water and the resultant fluid added to agar.—If 1 c.cm. of blood is boiled with 9 c.cm. water the whole of the colouring matter of the blood and the coagulable protein is precipitated in masses which rapidly separate, leaving a clear, colourless, watery fluid.

It may be necessary to add a small amount of acetic acid to get complete precipitation, but the amount of acid added should not be enough to neutralise the alkalinity of the blood. It is not material to the growth of *B. influenzæ* whether the liquor obtained is clear or whether it contains débris of altered blood. Clear fluid has, however, the advantage that it gives a transparent medium indistinguishable in appearance from ordinary nutrient agar.

This fluid is added to liquid nutrient agar and sloped. On planting with *B. influenzæ* a very profuse growth takes place.

The following experiment (Table II.) shows the quantity of this fluid which it is necessary to add to 5 c.cm. of agar.

TABLE II.

Quantity of fluid added.	Corresponding to original blood volume of—	Resultant growth.
1 c.cm.	0·1 c.cm.	Copious confluent growth.
0·5 ,,	0·05 ,,	,, ,, ,,
0·25 ,,	0·025 ,,	Copious colonies (small).
0·12 ,,	0·012 ,,	No growth.

The whole of the coloured fraction of the hæmoglobin is precipitated from the blood by boiling and only a colourless watery fluid is added to the agar. It is clear, therefore, that whatever is the nature of the substance which favours the growth of *B. influenzæ*, it is not, as was generally supposed, the coloured element of hæmoglobin.

Blood broken down by acids.—If to blood is added an equal volume of a normal solution of one of the strong mineral acids, such as sulphuric acid, the red colour is immediately changed to brown by the breaking down of the hæmoglobin. If now an equivalent volume of normal caustic soda is added, a brown precipitate is formed and a brownish fluid separates.

It is important to test the reaction of the fluid after the addition of the caustic soda to see that the reaction is only faintly alkaline to litmus, as a small error in the quantities of acid or alkali of this strength makes an enormous difference to the reaction of the medium, and consequently to the growth of the bacillus.

If this fluid is added to liquid agar it furnishes a medium on which the most profuse cultures of *B. influenzæ* can be obtained. It would appear, therefore, that so far as the growth of *B. influenzæ* is concerned sulphuric acid will effect the same change in blood in less than one minute that it takes trypsin four or five days to produce.

The quantities of fluid necessary to add to 5 c.cm. of agar are shown in Table III.

TABLE III.

Quantity of fluid added.	Corresponding to original blood volume of—	Resultant growth.
1 c.cm.	0·1 c.cm.	Copious confluent growth.
0·5 ,,	0·05 ,,	,, ,, ,,
0·25 ,,	0·025 ,,	,, ,, ,, (not quite so heavy.)
0·1 ,,	0·01 ,,	Copious growth of small colonies.

The best proportions in which to mix the fluids seem to be as follows: Blood, 1 part; water, 5 parts; normal sulphuric acid, 1 part. This mixture can be boiled and stored at room temperature for some weeks without deterioration.

This medium, which certainly gives as copious growths of *B. influenzæ* as any other, is very easy to prepare, and it has the additional advantage that it does not require sterile blood. The sulphuric acid is a very powerful antiseptic and rapidly sterilises the blood, even if it is very badly contaminated. This is brought out in the following experiment.

1 c.cm. of blood was added to 5 c.cm. of tap water and the mixture was then heavily contaminated with fæces. 1 c.cm. of normal sulphuric acid was then added, and the tube, after being shaken, was left at room temperature for half an hour, when 1 c.cm. of normal caustic soda was added. Of the resultant fluid 1 c.cm. was added to liquid agar, sloped, planted with *B. influenzæ* and incubated at 37° C. An extremely copious growth of *B. influenzæ* resulted, the medium being otherwise sterile.

It has been found that on media prepared from blood altered in these ways other organisms, such as staphylococci, do not exercise any symbiotic action on the growth of *B. influenzæ*. It would appear, therefore, that the change produced in the blood by boiling or by strong acids is of a similar nature to that effected by these organisms which exercise such a powerful symbiotic effect on *B. influenzæ* when unaltered blood is used.

Agglutination of B. influenzæ *by serum of men suffering from influenza.*—From the media described above very good emulsions of the bacillus can be obtained for agglutination purposes.

The sera of 21 patients suffering from influenza were examined for agglutinins to *B. influenzæ*. Wright capillary tube method was used, and the tubes were incubated at 50° C. for two hours before readings were made. The results were as follows:—1 serum agglutinated the bacillus up to a dilution of 1 in 1000; 2 sera up to 1 in 128; 3 sera up to 1 in 64; 10 sera up to 1 in 32; 4 sera up to 1 in 16; and 1 serum up to 1 in 8.

The duration of the disease in these men had been from three days to three weeks, but most of them were convalescents about seven to ten days after the onset. It will be seen that all the patients' sera agglutinated *B. influenzæ* to some extent, whereas none of the control sera tested showed any agglutination even in a 1 in 4 dilution. It follows from this that *B. influenzæ* is either the cause of the disease, or it is an extremely common secondary infection, and if it is a secondary infection then it follows the primary infection very rapidly, as agglutinins had developed in one case only three days after the onset.[1]

A differential medium for isolating B. influenzæ.—It has long been known that certain dyes, among them brilliant green, had the power of inhibiting the growth of Gram-positive bacteria to a very much greater extent than Gram-negative bacteria. It was thought that possibly, now we have a medium which grows *B. influenzæ* luxuriantly, the addition of a small amount of brilliant green to the medium might allow the growth of this bacillus while inhibiting the growth of the cocci which commonly exist in the sputum.

Agar was made up containing some of the clear fluid obtained by boiling blood and water, and to this was added brilliant green in a strength of 1 in 500,000. On this was planted *B. influenzæ*, staphylococci, streptococci, and pneumococci. After incubation a profuse culture of *B. influenzæ* was obtained, whereas all the cocci were completely inhibited. I suggest, therefore, that such a medium might prove extremely valuable in isolating *B. influenzæ* from a sputum where it occurs, as it commonly does, mixed with streptococci or pneumococci.

A medium for preserving the vitality of B. Influenzæ.—In certain quarters there has been difficulty in preserving alive cultures of *B. influenzæ*.

If this bacillus is planted into minced meat medium such as is commonly used for growing anaerobes to which a little blood has been added, it will preserve its vitality for a considerable period. Subcultures from this medium after six weeks gave growths as copious as after two days.

Summary.—Very profuse growths of *B. influenzæ* can be obtained (1) from blood boiled in agar; (2) from agar to which has been added some of the clear colourless fluid resulting from boiling blood in water; (3) from agar to which has been added blood which has been broken down by a strong mineral acid. If a strong mineral acid is used to break down the blood sterile blood is not required. The substance which stimulates the growth of *B. influenzæ* is not the coloured fraction of hæmoglobin.

By the addition of brilliant green to the medium pneumococci, streptococci, and staphylococci are inhibited to a much greater extent than is *B. influenzæ*.

Cultures of *B. influenzæ* can be kept alive for a considerable period on a blood meat medium.

All the patients tested who were suffering from influenza agglutinated *B. influenzæ*.

[1] Further work in this direction has shown that different strains of *B. influenzæ* differ markedly in their agglutination reactions. Some strains were readily agglutinated by patients' sera, while others were unaffected. The serum of a rabbit inoculated with one strain agglutinated only this strain and one other out of 20 different cultures tested.

Clinical Notes:

MEDICAL, SURGICAL, OBSTETRICAL, AND THERAPEUTICAL.

A CASE OF CANCER OF THE CÆCUM WITH PELVIC ABSCESS AND GANGRENE OF RECTUM.

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THE following case may be of interest.

Private D., age 46, was admitted from the medical ward, Station Hospital, Lucknow, with a large sinus discharging fæces and pus about ½ inch to right of anus and communicating with the anus. Patient had been ailing with hectic temperature and general debility and loss of weight for some weeks before reporting sick. Abdomen flaccid and nothing palpable. The only physical signs were the sinus and the marked debility.

An operation was performed on July 26th. The sinus was explored and found to lead to a large abscess cavity in the pelvis in which the lower end of the rectum was almost free, friable, and gangrenous. A large tube was inserted. The patient died some hours later. At the post-mortem examination a large soft, fungating cancer was found in the cæcum. In the pelvis was a large abscess cavity with rectum sloughing and gangrenous in it. The growth was causing no obstruction.

The explanation appears to be that the glands in front of the sacrum had suppurated and the pus tracked down the rectum, opening into it and involving it, and finally finding exit near the anus wall.

A CASE OF ECTOPIC GESTATION WITH AN APPARENTLY IMPERFORATE HYMEN.

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AN ectopic gestation is a fairly uncommon condition, and a hymen which at the time of the operation is imperforate is also rare. A combination of the two makes the case so out of the common that I consider it worth publishing.

The patient, a young woman of 28, married 6 months, was admitted on August 19th, 1918, with a history that on the 5th of that month she was taken suddenly ill with a severe attack of abdominal pain, that she soon became faint, and very pale. Her usual medical attendant was called in who ordered her to bed for a week. On August 11th she first lost blood and as she was getting worse she was sent to this hospital. She also stated that she never had any discharge per vagina, but that she used to menstruate once every 33 days. During the last two months she had not done so.

On examination she was very pale, pulse 98, temperature 99° F. There was a large swelling at the left iliac region; the abdomen was rigid and tender on palpation. The vulva appeared normal. The hymen was unruptured and very resistant, and at that time one could find with difficulty a tiny aperture permitting the entrance of a fine probe, from which a dark, tar-like fluid was escaping. The vagina was patent, for on pushing the hymen with the finger one could invaginate it and the lower end of the vagina upward like an inverted glove.

I performed laparotomy shortly afterwards. There was free blood in the peritoneal cavity and large pieces of blood-clot were surrounding an enlarged uterus, the size of a two months pregnancy. These clots were swabbed out, and the Fallopian tube (left), which was very enlarged, was found imbedded in the organised clot. The whole mass was adherent on the rectum and anteriorly in the utero-vesical pouch, which was carefully separated. From the nature of the adhesions it seems that gestation continued after the Fallopian tube was ruptured and the fœtal sac ruptured later. The left ovary was also imbedded in the mass and the whole Fallopian tube, sac, clot, and ovary, were removed, and the stump firmly tied in the usual way. The patient made an uninterrupted recovery.

On Sept. 13th a plastic operation was performed on the vulva. On examination of the hymen, under anæsthetic, it was found that it formed a complete septum, completely closing the vagina without any signs of aperture or even scar! I therefore pinched it at its middle with toothed forceps and cut a small opening into it. A little tar-like fluid escaped, and with the finger it was found that the vagina was normal, and therefore the considerably thickened membrane was removed with scissors and the raw edge stitched by a continuous catgut suture, leaving a normal-sized canal. The patient is now completely well and back to her domestic duties.

There is no doubt that the menstrual flow was delayed in the vagina each time until the pressure produced temporarily a little puncture through which fluid could escape, and that conception took place at one of these periods. From the condition of the hymen it is obvious that no proper sexual intercourse could have taken place, but in spite of that abnormal pregnancy occurred.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

The Management of Venereal Diseases in Egypt during the War.

A GENERAL meeting of Fellows was held on Jan. 20th, when an illustrated lecture was delivered by Sir JAMES W. BARRETT, Lieut.-Colonel, R.A.M.C., on his own experience in the management of venereal diseases in Egypt during the recent war. Sir JAMES GALLOWAY occupied the chair.

Commencing with a brief reference to the history of venereal diseases in Australia prior to the war, Sir JAMES BARRETT stated that efforts to combat these diseases began in 1896 and culminated in 1910 with an investigation made by the Government at Melbourne. The results of this were so impressive that clinics were established, an educational campaign instituted, and, probably for the first time, newspapers opened their columns to communications on the subject, couched in technical terms. Little result followed this early effort, and a committee was then formed to work out the details of prophylaxis, while pressure was brought on the leading chemists of the city to place calomel ointment on sale for this purpose. Ministers of State and ministers of religion were approached for their support, but many of the latter did not approve of the steps proposed. It was, however, arranged for a committee of clergy to be taken to the asylums to see cases of general paralysis and locomotor ataxia, to visit hospitals and clinics, and further work in this direction was contemplated when war broke out and the lecturer left for Egypt. On his way thither Sir James Barrett gave lectures to the men on the value of continence, pointing out that if determined to expose themselves to infection they must take precautionary steps. In January, 1915, venereal diseases were very prevalent in Egypt, and the military authorities were keenly anxious about the health of the troops. The troops were then occupying the Delta, and here it was that the diseases were contracted. Afterwards when the Army reached Gaza, and in 1917 when the Turkish lines were broken through, a new problem arose with the appearance of considerable numbers of new infections. The lecturer held that trouble might have been expected in the case of troops coming from a dominion where discipline was not pronounced and thrown into an Eastern country like Egypt and surrounded by every inducement to sexual intercourse, natural and unnatural. When the break-through occurred in Palestine venereal diseases were more easily kept under control, the lines of communication being then 600 or 700 miles long. Here the lecturer interpolated the remark that the military campaign was in essence a fight against malaria, an enemy which had previously arrested Mark Antony, hindered Trajan, destroyed the Crusaders, and impeded Napoleon.

The Measures Adopted and their Results.

Sir James Barrett on his arrival in Egypt was invited by General Birdwood to do anything he could for the Australian troops, who were being infected at the rate of 800 or 1000 men a day, social and moral measures alone being permitted. He visited every ship arriving in port, the men being forbidden to leave until he came on board. A leaflet of advice was handed to each man warning against the perils of native alcohol and of exposing themselves to venereal infection, and the position was fully explained to the officers without going into the question of prophylaxis. In the hospitals, on the other hand, besides enlightening literature, the men were provided with prophylactic outfits consisting of calomel ointment. On the value of prophylaxis being challenged, an examination of those Australian troops who had been supplied with outfits established the fact that out of a group of 200 men exposed to infection only one contracted disease, and he had not taken precautions. In the lecturer's experience primary prophylaxis had been practically certain in its results. But, at the same time, Sir James Barrett emphasised his view that no educational opportunity should be neglected. He showed pictures illustrating the huts and converted buildings used as social and athletic clubs for the troops in order to provide counter attractions. All this had been done in association with the Y.M.C.A., which had performed invaluable work in following the men high up to the front line and erecting huts there for their comfort and

diversion, and organising clubs. Social advantages were thus kept close to the men during the whole of their advance. During the latter half of 1915 Sir James Barrett was invalided for a time to England, and there was a period when the work was not pushed, but the result was that an intense moral and restrictive campaign, together with constructive work in the establishment of magnificent soldiers' clubs, produced a moderate amelioration and tolerable decency. But where prophylaxis was properly taught and applied venereal diseases were practically non-existent. At the end of 1915 the men returned from Gallipoli and moved to France, when infections became more numerous. The Australian troops returning from the Dardanelles in the first five months of 1916 included 10,000 with venereal infections, and at one time the average infection rate was 25 per cent. per annum. After the adoption of measures which included penal measures against unnatural offences, public indecency and pimping, the control of advertisements, the restriction of the sale of alcohol, the strict medical examination of prostitutes, the provision of ablution rooms, and the supply of prophylactics, the infection rate became reduced to very modest proportions. On the march into Palestine the moral and prophylactic campaigns were combined, and in the latter half of 1918 the disease was checked. Whilst these events were taking place throughout Egypt, at Port Said martial law was proclaimed by Lieutenant-Colonel Elgood, and prostitutes were excluded from European quarters. The women who would not leave Port Said were confined to the Arab quarter, under the Egyptian Public Health Department. An end was put to the white slave traffic discovered by the censor, and the women were examined. But soldiers still became infected from women who were reported free of disease.

Whatever the measures taken, the disease could not be stopped altogether, and so long as intercourse took place without precautions venereal diseases would necessarily result. But the value of prophylaxis emerged. In one camp through which 9282 troops passed 4500 men reported exposure to infection, and as a consequence of early preventive treatment only 13 infections resulted. The lesson taught by experience in Egypt was that all social methods combined resulted only in a limited reduction in the incidence of venereal diseases, and that unless some form of prophylaxis was adopted many infections were certain to result. From the establishment of venereal centres in this country Sir James Barrett anticipated nothing but good. The ethical side of the problem, so far as it concerned medical men, was the wholesale infection of the innocent, and Sir James Barrett could see no immorality in the prevention of venereal diseases by prophylaxis, or any value in a morality dependent upon the fear of consequences. If normal desire was to be satisfied marriage must not be postponed until the summer of life, or irregular unions would be formed. The matter, the lecturer concluded, lay largely in the hands of women; if they revised their standards of value and did not observe the existing and artificial social assessments, much of the existing sexual problem would speedily be solved.

Discussion.

Dr. OTTO MAY, who was in general agreement with the remarks of the lecturer, pointed out that at the present time we were concerned less with the actual restriction of the disease in the Army than with the evil among the civilian population. The danger of demobilisation was now generally recognised, and the Local Government Board was planning the establishment of a large number of treatment centres. He hoped that each county council and each county borough council would establish a full-time venereal clinic open day and night and every day, and that provision for early preventive treatment would be established at these clinics. In theory this solution of the problem was admirable, provided people could be induced to attend there for early treatment. In practice, however, it was a failure, for it would take almost a year before the clinics could be in working order. There was also the difficulty of providing an adequate staff. But even if every town had a clinic we should be a long way from solving the problem, because people would not go immediately after connexion for early treatment. The only reasonable alternative was to authorise the distribution of prophylactic outfits. The sale of drugs for this purpose was now illegal, save under the advice of a medical man, and Dr. May suggested that the Local Government Board or its successor, the Ministry of Health, should make this question its own particular subject. The disease would not be wiped out altogether by the use of prophylactics, but that was no excuse for passivity, and there could be little doubt that a great diminution would follow if these steps were taken promptly.

Professor J. G. ADAMI paid a tribute to the work of Sir James Barrett, which had, he said, exerted a profound influence in America and Canada.

Sir JAMES GALLOWAY laid stress on the present difficulty of getting a complete staff for venereal clinics; there were not sufficient trained pathologists and bacteriologists available. The question of proper remuneration also demanded consideration.

Professor ADAMI suggested that non-commissioned officers of the R.A.M.C. might be employed to give instruction at the centres under the supervision of a medical man.

In replying, Sir JAMES BARRETT said that a forceful and intelligent presentation of the case to the public was necessary before it could be induced to spend money on the prevention of disease.

LONDON ASSOCIATION OF MEDICAL WOMEN.

The Future of the Medical Profession.

A MEETING of this association was held on Jan. 14th at 11, Chandos-street, Lady BARRETT, the President, in the chair.

Dr. JANE WALKER opened the discussion with a paper on "A State Medical Service," in which she referred to the need for a Ministry of Health, with the medical profession organised into a whole-time salaried service on the lines of the higher branches of the Civil Service, but admitted that there would be a transition stage with some part-time and some whole-time workers. Dr. Walker then drew attention to some of the well-known disadvantages of general practice as it is now conducted—the uncertain hours, the difficulty of making a sufficient number of visits in many cases of illness, the powerlessness of the profession in dealing with such evils as bad housing and the inroads made lately upon general practice, as in the treatment of tuberculosis and venereal diseases, and in maternity and child welfare. In a State Medical Service provision would be made for full hospital opportunity for all patients, for study leave every five to seven years, and for each medical officer to rise according to his merits and in the direction in which his talents lay. The medical profession was now too great to acquiesce in the plan whereby each man and woman competed with his neighbour; it should organise itself so as to ensure the greatest public welfare.

Dr. CHRISTINE MURRELL spoke on the position of the general practitioner in domiciliary treatment as a link between consultants, and to the advantageous position which he sometimes has over the medical officer of health in dealing with such evils as slum property. She referred to the conduct of American clinics on a collective system, in which treatment was open to all, with payments according to means, and assessed by almoners.

Dr. JESSIE CAMPBELL spoke on methods by which the standard of work in general practice might be raised. She advocated part-time appointments for such work as infant welfare, school treatment centres, and the treatment of tuberculosis and venereal disease. This would keep the general practitioner more up-to-date than attending post-graduate courses.

Dr. DOROTHY HARE said that the standard of work in general practice dropped because practitioners worked alone, and so lost mental stimulus, and that they found it difficult to try new treatment owing to want of moral support such as they would have in a hospital.

An interesting discussion ensued in which the following took part: Dr. RUTH BENSUSAN-BUTT, Dr. DICKENSON BERRY, Dr. M. COCKERELL, Dr. O. LEWIN, Dr. MEAKIN HERFORD, Dr. L. FAIRFIELD, and Lady BARRETT.

AT the last meeting of the Edinburgh University Court, Dr. Dawson Turner was appointed additional examiner in medical physics.

LITERARY INTELLIGENCE.—P. Blakiston's Son and Co., Philadelphia, announce a second and revised edition of the American Red Cross Text-book on First Aid, by Colonel Charles Lynch, U.S.M.C.

Reviews and Notices of Books.

The Soldier's Heart and the Effort Syndrome. By THOMAS LEWIS, M.D. Lond. London: Shaw and Sons. 1918. Pp. 144. 7*s.* 6*d.*

INTO this small book Dr. Lewis has packed much information. As is his wont, he writes only of those things he has himself found to be true, and he sets these down in a well-knit form easy to apprehend. His experience of cardiac disabilities in soldiers is probably unrivalled, and this book is therefore one which no one handling these problems can afford to do without. It is written especially to help members of invaliding and pensions boards, and this purpose is admirably fulfilled.

Dr. Lewis's main thesis is that the "soldier's heart" syndrome is made up of the same subjective and objective components as follow strenuous exercise in healthy men. In the exhausted soldier, however, the point of cardiac distress is much more easily reached. For its causation this exhaustion depends on several factors, some inherent, some acquired. It is to be detected mainly by testing the man with physical exercises. These, if graduated, constitute a means of prognosis as well as of treatment. They are also applicable to the recruiting problem. These arguments, with tabulated results of the treatment based thereon, and much sound advice as to the discernment of organic heart disease, constitute the bulk of the book. It appears at an opportune moment, for one of the great tasks which the Pensions Medical Service (if and when we have one) must tackle is that of assessing fairly the claims of the man with a cardiac disorder or lesion. The book is clearly printed, and can be read in two or three evenings.

LIBRARY TABLE.

Kala-azar, its Diagnosis and Treatment. By ERNEST MUIR, M.D. Edin., F.R.C.S. Edin. London and Calcutta: Butterworth and Co. 1918. Pp. 38. Rs. 2.—This little book is introduced by Sir Leonard Rogers, and is written with the object of supplying to the medical practitioners in small towns and villages in India a guide to the diagnosis and treatment of this very prevalent disease. Until lately kala-azar was almost always fatal, but Dr. Muir considers that if the condition be treated by the intravenous injection of soluble antimony salts, as advocated by Sir Leonard Rogers, "recovery may be expected in almost all cases where the treatment is begun in time and carried out efficiently." Having considered the question of diagnosis, the author describes his method of treatment, which he divides into four divisions: (1) the production of leucocytosis by the intramuscular injection of turpentine, camphor, creosote, and olive oil; (2) the destruction of parasites by antimony salts; (3) the treatment of complications; and (4) general tonic treatment. The work should be useful to those who are actively engaged in dealing with kala-azar, as the technique of various operations, such as spleen puncture and the intravenous injection of antimony, are described in detail.

At Home in the War. By G. S. STREET. London: Heinemann. 3*s.* 6*d.*—The normal psychological attitude displayed towards the war, as it went on, by middle-aged men averagely endowed for comprehension and sympathy is probably a fair definition of the thing which Mr. Street was trying to express in this little book. He has been misled by his modesty if he thinks that his description of such an attitude represents the average man's ability. Such remarks as this: "It is a universal foible of humanity to exaggerate the work of what you know and another man does not know; the vanity of special knowledge is seen everywhere"; or the analysis of the anti-national spirit in the paper entitled "Our Intellectuals," are in their neat and terse manner expressions of what most of us would be proud to say half as well. The "Revanche" for middle age, in the paper called "The War and Age," is a specimen of the author's pleasant humour. On page after page one finds set out with lightness and charm some thoughts of which most middle-aged men at home have been conscious without being able to define them. Mr. Street holds up to many of us a mirror from which the haze obscuring our real thoughts has been skilfully wiped away. Many quite conscious of an imperfect realisation of what is really being thought will value the little book and feel thankful and friendly towards its author. In a somewhat different vein to most of the book is an "essay in little," called "The War and Kensington Gardens," which Mr. Street says should have been really a sonnet or sonnet sequence. It would be pleasant if the author would try his hand in that mode; he has not only the deftness and delicacy but also the power which make up the true sonneteer.

A Health Reader for Girls. By AGNES L. STENHOUSE and E. STENHOUSE, B Sc. Lond. London: Macmillan and Co., Limited. 1918. Pp. 190. 3*s.*—This is an excellent little book in which the subject of health is dealt with in the simplest language. The body is first described, after which an account is given of food, digestion, care of the teeth and cleanliness, clothing, breathing, ventilation, the blood, the nervous system, and special senses. The only chapter to which we take exception is that on the Food of Babies. Milk is not necessarily sterile after being stood in a pan of boiling water for a quarter of an hour. The information given on preparing the baby's food, on the amounts which should be given, and on the times of feeding is long out of date. No special dilution and no definite amount of food is now given to a baby of a certain age, and, though these instructions may be useful in helping to prevent disasters, it is a mistake to put a hard-and-fast rule on record in a book which may be referred to in the home, or to give a mother the idea that her baby can be fed by any rule-of-thumb method. Babies' digestions, like babies themselves, are not all made on one pattern.

New Inventions.

A "DROPPED-FOOT" APPLIANCE.

WE have received from Mr. Frank Jenner, surgical boot-maker, Christchurch-road, Boscombe, an appliance intended to enable the sufferer from "dropped foot" to walk with ease and comfort. It consists of an iron framework formed of two sickle-shaped arms joined together at the straight ends by a short transverse bar passing under the sole of the boot and close to the heel, to which it is affixed by a flat broad hook. The straight parts of the sickle-shaped sides pass upwards towards the ankles, the bend in the sickle allowing for the protrusion of the malleoli. The framework is kept rigid and in place by a strap passing round the back of the boot. The free ends of the framework are joined to the front part of the boot by spiral springs at points at either side of and at a level with the bottom of the laced opening. These springs can be adjusted so as to correct any tendency to inversion of the foot or the opposite, and the whole apparatus can be adapted to any sized boot. The appliance, which costs 15*s.*, is ingenious and may prove useful in practice—we are informed that it has been used with satisfaction at the Boscombe Military Hospital—but it seems to us that the upper portion of the lever is too short, consisting as it does only of the part corresponding to the last inch of the tibia and that the pressure of the strap over the tendo Achillis can hardly fail to be excessive if the device is to keep the toe from dropping. The hooks, too, by which the springs are connected with the boot do not seem very well adapted for hard wear. These criticisms, if in practice they are found to be just, can be readily met.

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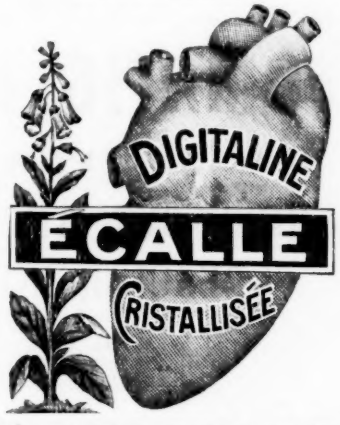

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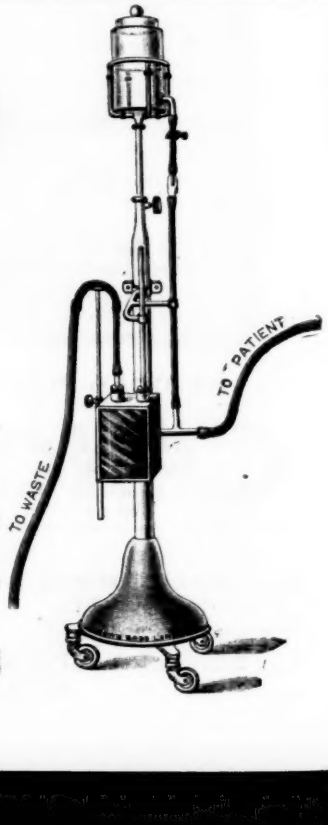

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LONDON: SATURDAY, JANUARY 25, 1919.

The Psychopathic Criminal.

AMONGST the problems to which the war has given a new aspect and an added urgency the treatment of the mentally defective and unstable criminal is one of considerable importance. Large numbers of men will be returning to this country or will be coming out of the military hospitals while still suffering in some degree from mental and nervous disabilities brought about by the unexampled stresses of modern warfare. It may be anticipated with a fair measure of assurance that in many cases the mental enfeeblement of these invalids will be manifested by disorders of conduct of more or less gravity, bringing them into conflict with the law; and several instances of this kind have, in fact, come before the criminal courts within the last few weeks. Public opinion will not tolerate the treatment of these war victims by the indiscriminate methods which have been applied to the general mass of law-breakers. The demand will certainly be made that in every such case full consideration should be given to the mental condition of the offender, and that he shall be dealt with on curative lines adapted to his individual needs, and not merely by the stereotyped punitive and repressive measures which up to the present have been the sole resource of the law. To satisfy this demand, which can obviously be urged with no less force in regard to other categories of psychopathic delinquents, it will be necessary to introduce an entirely new spirit into the system of procedure in criminal cases and to recognise to a far greater extent than in the past the importance of the help which the expert in morbid psychology can give in the administration of justice.

A proof of public opinion in this direction is supplied by the proposals in a report which was submitted to a meeting of the justices of the City of Birmingham on Jan. 2nd of this year by their General Purposes Committee. This report, presented by Mr. GERALD BEESLY, deputy chairman of the justices, voices the dissatisfaction which has been felt by the Birmingham magistrates—a dissatisfaction which has doubtless been shared by magistrates in other parts of the country as well—at being compelled to deal with criminal cases without having any regular facilities for obtaining expert advice touching the mental condition of the offenders, and without adequate means of giving effect to such advice even if it were obtainable. In the opinion of the committee, this deficiency in the legal machinery has been an important factor in the relative failure of the existing penal system as a reforming agency and as a preventive of recidivism. With a view to organising a more satisfactory method of treatment the committee have put forward a number of valuable suggestions, which they divide into two categories—those which are immediately practicable, and those which can only be carried out by special legislation. Of the proposals under the former heading the most important is the recommendation that a physician with expert knowledge of psychiatry should be attached to the court, with whom the justices can confer and take counsel in any particular case. It is interesting to note, as bearing on this suggestion, that a similar system was introduced in 1914 at the instance of Chief Justice HARRY OLSON, in connexion with the Municipal Court of Chicago. Here a psychopathic laboratory was instituted under the direction of Dr. W. J. HICKSON, for the examination of accused persons presenting indications suggestive of mental abnormality; and according to the recent reports of the Court (Tenth and Eleventh Annual Reports of the Municipal Court of Chicago) the results obtained have been such as to convince the judicial authorities of the practical utility of psychiatric assistance, not only in deciding as to the treatment of offenders but also, in many cases, in assessing the reliability of witnesses. It is difficult to think of Chicago as a field for the propagation of academic theories and doctrinaire views; and the fact that the authorities of this typically business centre have been moved by scientific psychology to consider the proper treatment of the criminal justifies the attachment of considerable weight to such testimony to the value of psychiatry in the administration of the law. The example of Chicago should encourage the citizens of Birmingham to carry out the interesting experiment which they have projected. They will, of course, be impeded in this enterprise by the fact that, in the present state of the law, only very limited means exist for applying differential treatment to the various categories of mentally defective and unstable offenders; but the accumulation of definite data regarding the relation of mental abnormality to crime, which this scheme should provide within a short time, will in itself be of considerable value in educating public opinion, and will do much to further the adoption of the legislative reforms which they advocate.

These reforms are set out in Mr. BEESLY'S report as follows:—

1. The provision of "places of detention" for observation of cases of mental instability, instead of prison on remand.

2. The provision of farm colonies and the like for cases which cannot be dealt with under the Lunacy or Mental Deficiency Acts, instead of prison.

3. The establishment of a consultative clinic, associated with the administration of justice, with expert medical practitioner and lady superintendent in charge, for voluntary treatment of cases where some form of mental weakness is exhibited, and to which the friends or relations of the person affected might appeal for help and guidance.

4. The clinic might also: (*a*) Assist in determining how far more or less recidivist criminals submitted for examination by the police are fit to be at large; (*b*) examine persons suffering from "borderland insanity," whether submitted by public authorities or by their relatives, prescribing (or certifying) appropriate treatment where mental instability is established; (*c*) deal with feeble-minded women and girls who have borne illegitimate children, or have become infected with venereal disease.

5. Amendment of the Mental Deficiency Act, 1913, especially by extending its operation to cases of mental debility other than those existing "from birth or from an early age."

These proposals should find general acceptance as indicating the principles to be kept in view in reforming our present methods of dealing with mental weakness which leads to anti-social conduct. Such modification as they may need in detail will

be more clearly perceived when the immediate action contemplated by the Birmingham magistrates has given a more accurate and more comprehensive view than we have yet obtained of the nature and dimensions of the problem. It will then be possible to decide, for instance, whether such a psychopathic clinic as suggested in the Birmingham scheme should be primarily associated with the administration of the criminal law, or whether it might not be preferable to institute it in connexion with a general hospital, or with an out-patient department attached to an asylum for the insane. On this and on other points the decision ultimately arrived at will, no doubt, be determined very largely by the extent and character of the reforms in lunacy administration which will inevitably form part of the coming reconstruction of the health services of the nation, and which are urgently needed to bring psychiatry into closer touch with other branches of medicine. Meanwhile we may cordially congratulate Mr. BEESLY and his coadjutors on their initiation of an experiment which, in addition to its immediate practical results, should do much to stimulate the public demand for a wider application of scientific methods in dealing with the problem of criminality.

The Rôle of the Catalyst.

THE catalyst is assuming an importance no less in medicine than in industries. Chemists long ago found out the peculiar action of a third party in promoting chemical interaction. The classic example is that of the preparation of oxygen gas from chlorate of potassium. The fused mass of the salt, with heat still applied to it, yields its oxygen reluctantly, but at that point it is dangerous to introduce a trace of manganese dioxide since at once the evolution of oxygen becomes explosive though the manganese remains unchanged. An earlier example of catalysis was the Döbereiner lamp, in which spongy platinum was the catalyst effecting the union of a mixture of hydrogen and oxygen at such a speed that ignition was the result. The most remarkable catalyst of all is water, without which, it has been shown, combustion or oxidation is impossible. Similarly the louse is a catalyst in respect of man and trench fever. Catalysts, briefly, are promoters of chemical action for reasons not yet fully explained. They may function equally in the relatively cold or under conditions of high temperature. The remarkable behaviour of catalysts in the human body at its normal temperature illustrates the importance of their action in promoting healthy nutrition, which after all means the complete chemical assimilation of food substances.

We have much yet to learn as to the nature of the action of the accessory factors in food—for convenience called vitamines—which serve as antineuritic and antiscorbutic agents. It is conceivable that in the chemical sense they act as catalysts—that is, as a third party, rendering the potentialities of food available for the maintenance and growth of the organism. It is known, at all events, that they occur in quite minute proportions, in spite of which they prove to be essential to growth. When we consider the very remarkable results produced in great industrial processes by the agency of the merest trace of a third party, the catalyst, our views are strengthened as to the importance of a certain factor present in however minute quantity. There is good reason for suggesting that the vitamines are catalysts just as are the enzymes, whose action in many respects resembles that of inorganic catalysts, particularly in the colloidal state. Dr. G. G. HENDERSON, in a recent valuable treatise on Catalysis in Industrial Chemistry,[1] says that the term "catalysis" is now generally used to designate those chemical changes of which the progress is modified by the presence of a foreign substance, and he further points out that it has for long been known that the velocity of many chemical reactions which take place very slowly if the reacting substances alone are present in the system is greatly increased by the addition of certain substances, which have the same composition after the change has been completed as at the beginning, and which therefore appear to influence the course of the reaction without taking any definite stoicheiometric part. This definition would appear to include all accessory food factors as catalysts, having no direct nutritive value themselves, but serving as promoters of a nutrient consummation.

The application of catalysts in industrial operations is growing very rapidly in importance, and the behaviour in many respects of the catalysts employed shows a curious parallel to well-known physiological phenomena. Traces of arsenic, mercury, sulphur, hydrocyanic acid, "poison" in so many cases the catalysts' activities, and there are also negative catalysts which inhibit the action of positive catalysts not by "poisoning" them but by neutralising their potentialities as acid does an alkali. Sir EDWARD THORPE, writing in his introduction to the excellent "Monographs on Industrial Chemistry" now being issued, says an obscure phenomenon like catalysis is found to be capable of widespread application in manufacturing operations of the most diverse character. The phenomenon may be obscure, but its applications are suggesting great possibilities in arts and industries which are bound to have an important bearing on the commercial prosperity of this country. The catalyst, in short, promises to open a way to important economic productions, as witness the hardening of liquid fats for food purposes, the production of fertilisers from the air, and the output of many valuable commercial products. The advances made and the vista opened up by the study of catalytic action, though confined largely to industrial processes, should persuade biologists, as well as biological chemists—we see no dividing line between these two schools of workers—to accept a cue which, followed, may lead to results in the study of life processes of immeasurable importance. The part played by conceivably a catalyst in human nutrition may, when thoroughly investigated, enable us to adopt a regimen which will secure for certain patients a dietary in which the supply of accessory factors is well represented. It is a matter of history that industrial developments have been shown to give a helping hand to medicine—the coal-gas industry with its output of antiseptics, synthetics, and colours, the brewing and wine industries which formed the basis of PASTEUR'S successful researches are cases in point. The prominent place which the catalyst is rapidly taking in industrial advances will shed a light on the chemistry of the human mechanism, its liabilities, and the factors which count in its healthy maintenance.

[1] Catalysis in Industrial Chemistry, by G. G. Henderson, M.A., D.Sc., LL.D., F.R.S. Longmans, Green, and Co., London, 1919, pp. 202, price 9s.

The Outlook of the Medical Practitioner.

WE publish this week a personal retrospect by Dr. JAMES PEARSE of his experiences, extending over some 20 years, of general practice, and from his sternly modest remarks there can be gathered not so much what the past has been as what the future should be. Dr. PEARSE reviews the advantages and disabilities, the privileges and drawbacks, of general practice as it existed for the mass of general practitioners before the war, and also before the passage of the National Insurance Acts brought in a system of panel practice. He would be the first to allow that there is not much in his résumé either of the difficulties of general practice or of its compensations that has not been said before, either explicitly or by inference, but we publish the essay with pleasure because it is a practical account of things as they have happened, containing at the same time large suggestions for their improvement. It not only indicates what ought to be altered, but lays stress upon what ought to be preserved. It is really a story of progress, for undoubtedly the medical student of to-day starts with a far finer equipment than the medical student of 30 years ago. Not only is his general standard of knowledge much higher, but the science upon which that knowledge is founded is more thorough, and the general principles of biology, chemistry, and physics replace in his education the rule-of-thumb tenets of the older medical schools.

But by as much as the man who now enters medical practice does so with a wider outlook than the commencing practitioner of 30 years ago, by so much does he feel the need for a continuance of his studies and of the introduction of scientific method into his professional life. It is true that the young medical practitioner of to-day, as of 20 or 30 years ago, must gain his knowledge largely from his own experience and from the exercise of his own judgment; he feels strongly, however, that he should not be called upon to alleviate the ills of the public in accordance with a set of dogmatic precepts, for he is really playing his part in a great preventive and curative scheme founded on scientific principles. And therefore he realises that he ought to be in close touch with his colleagues similarly engaged. He is aware that he should have proper opportunity to revise his knowledge by mutual counsel and to secure for his patients special consultative advice in directions where his scientific information indicates the particular treatment needed. Regarded in this way Dr. PEARSE'S retrospect is a forcible argument for much of that decentralisation of medical skill and knowledge which most of the schemes for a Ministry of Health postulate. When there is a central controlling authority of medicine, and when it is perceived that all medicine should be preventive in its inclusive object, the wastefulness and cruelty of leaving the general practitioner in his present isolated position will be apparent. The original foundation of panel practice contemplated the formation of local centres of scientific medicine, to serve as rallying points for general practitioners, constituting a liaison between routine medical practice and special or laboratory development. More ambitious schemes have been published expanding this idea, and, read as a message for the future rather than a record of the past, Dr. PEARSE'S essay is a demand for movement along the same lines.

Annotations.

"Ne quid nimis."

THE VACCINES AND SERUMS SUPPLIED TO THE ROYAL NAVY.

PREVIOUS to 1916 the greater part of the vaccines required were received from the inoculation department of St. Mary's Hospital, through the courtesy of Sir Almroth Wright. Surgeon Captain P. W. Bassett-Smith, C.B., C.M.G., R.N., informs us that since then the undernoted quantities have been prepared in the laboratories of the Royal Naval Medical School, Greenwich, by the naval staff, assisted by a civil bacteriologist, who joined for the war from Armstrong College, Newcastle:—

Typhoid vaccine, 5400 c.cm.
Paratyphoid vaccine, 21,500 c.cm.
Triple typhoid vaccine (Naval formula), 247,700 c.cm. The triple vaccine is a mixture of *B. typhosus*, *paratyphosus A*, and *paratyphosus B* heated to 55° C. for half an hour; 0·5 per cent. phenol is then added.
Cholera vaccine, 8600 c.cm. (Prepared from several strains of Balkan origin.)
Antisepsis vaccine, 48,400 c.cm. (A mixed polyvalent vaccine containing streptococci and staphylococci.)
Influenza vaccine, 144,000 c.cm. (A mixed polyvalent vaccine containing *B. influenzæ*, streptococci, and pneumococci.)
Melitensis vaccine, 1380 c.cm.
Staphylococcic vaccine, 910 c.cm.
All antitoxins and serum prepared elsewhere were issued to the various divisions, depôts, and ships from the school.
Tetanus antitoxin, 14,800 doses.
Diphtheria antitoxin, 2400 doses.
Antidysentery serum, 2800 doses.
Antistreptococcic serum, 1250 doses.
Antimeningococcic serum, 5000 doses (and other sera and vaccines in smaller quantities).

During 1917 and 1918, 30,900 c.cm. of triple typhoid vaccine was prepared at the R.N. Hospital, Malta, and distributed locally to the Fleet in the Mediterranean.

Surgeon Captain Bassett-Smith has further supplied us with the following significant and valuable information in respect of antityphoid vaccines used in the Royal Navy and the incidence of cases:—

1914–1915. (*Simple Typhoid Vaccine.*)

No. of men.	Inoculated once.	Inoculated twice.
23,448	1869	21,579

The differentiation of cases was not sufficiently accurate for summary, but out of the 372 reported there were among the inoculated 3 deaths and among the uninoculated 22 deaths.

1915–1916. (*Simple Typhoid and Triple Typhoid Vaccine.*)

No. of men.	Inoculated once.	Inoculated twice.
20,663	1967	18,696

(12,000 were simple typhoid vaccine only.)

Total cases of enterics, 295:

	Typhoid.	Paratyphoid A.	Paratyphoid B.
Not inoculated ...	24 %	10·2 %	11·0 %
Inoculated once ...	14 %	7·8 %	7·8 %
Inoculated twice...	10 %	7·4 %	11·0 %

(For percentage of these types see Haslar statistics.)

1916–1917. (*Triple Typhoid Vaccine.*)

No. of men.	Inoculated once.	Inoculated twice.
21,695	1578	20,117

Total cases of enterics, 144, comprising 93 typhoid, 21 para. A, 30 para. B:

	Typhoid.	Paratyphoid A.	Paratyphoid B.
Inoculated once ...	6	3	1
Inoculated twice...	13	9	12
Not inoculated ...	74	9	17
	Deaths.		
Not inoculated ...	3	1	0

No deaths among those inoculated.
Of the 13 typhoid cases inoculated twice, in 11 over 12 months had elapsed.
Of the 9 para. A inoculated twice, 3 had received simple

typhoid vaccine only, and in 3 over 12 months had passed since inoculation.

Of the 12 para. B inoculated twice, 2 were inoculated with the simple vaccine only.

1917–1918 (Triple Typhoid Vaccine.)

No. of men.	Inoculated once.	Inoculated twice.
20,910	1486	19,424

Total cases of enterics, 96, comprising 79 typhoid, 6 para. A, and 11 para. B:

	Typhoid.	Paratyphoid A.	Paratyphoid B.
Inoculated once ...	6	—	2
Inoculated twice...	12	2	2
Not inoculated ...	61	4	7
	Deaths.		
Inoculated twice...	1	—	—
Not inoculated ...	5	1	—

Of the 12 typhoid cases who had been inoculated twice, in 9 of them over two years had elapsed since being last inoculated, but in one the period was only 10 months, and this case was fatal. Of the two para. A, one had been inoculated six months before and one a little over a year, showing comparatively slight protection from this form of the disease. Of the two para. B, in both the cases the inoculations had been given over two years previously. The results show that the protection for typhoid and para. B is good, but at least two inoculations are required, and that reinoculations should be made not later than 18 months.

THE SPECIAL CLINICAL MEETING OF THE BRITISH MEDICAL ASSOCIATION.

THE customary annual meeting of the British Medical Association has not been held during the last four years. That meeting was formerly arranged with domestic and general subdivisions; the domestic consisting of the meetings of the Council and of the Representatives, and dealing with the internal work of the Association, the general consisting of the sections prepared to discuss the clinical and scientific work of the year. During the war the sectional debates on the various branches of professional learning have not been held, as so many prominent exponents of medicine were engaged on the medical work of the Navy, Army, or Air Force, when the annual meeting resolved itself into meetings of the Council and of Representatives. At the annual general meeting at Aberdeen just prior to the war it was arranged that an annual general meeting, presumably of the usual type and scope, should take place in the following summer in Cambridge under the presidency of Sir Clifford Allbutt, but as that date approached it became clear that no adequate meeting could be held. The University had become practically a large training camp for staff officers as well as cadets, and was so denuded of all accommodation that the hospitality of its walls could no longer be proffered. Moreover, by this time all men began to see that the end of the war was far away. The question of the next annual general meeting of the Association has been held under consideration ever since, only the domestic gatherings being held. And, now that hostilities are suspended, the position of strain in the medical profession has been so little relieved that it has been thought wise to attempt no regular annual general meeting until 1920, in which year, however, Sir Clifford Allbutt has announced that the University is looking forward to entertaining the Association. In the circumstances it has been decided that a special meeting should be held this year for the discussion of clinical and scientific subjects, but on a smaller scale as to sections than has marked previous annual meetings. This special general meeting will take place early in April, and last for two, or perhaps three, days. A general committee has been appointed for its promotion, together with two sub-committees, one taking over the organisation and the other dealing in detail with the programme of scientific work. The decision is an expression on the part of the Association that the time has come to relay old tracks and to make plans for reconstruction, even though no attempts at a comprehensive scheme can yet be entered upon. The meeting will be held in London and its main object will be to bring together British workers and visitors from the Dominions and the United States. There will be no large disengagement from their duties before April either of our Colonial or our American colleagues, so that an exceptionally strong medical voice ought to be obtained on many subjects from a series of officers who have studied war medicine and war surgery on many spots and from many points of view. Colonel A. M. Whaley, speaking as United States liaison medical officer with the War Office, has given a warm welcome to the proposal, which has also received the support of Colonel J. G. Adami, Professor of Pathology at the McGill University, Montreal, and Colonel R. D. Rudolf, speaking for Canada, and of Colonel C. T. M. De Crespigny and Colonel Bernard Myers, speaking respectively for the Australian and New Zealand Army Medical Services. Hearty acceptance of the proposal has also been received from Sir William Norman, Medical Director-General of the Navy, Sir John Goodwin, Director-General of the Army Medical Service, and Colonel T. D. Barry, representing the medical administration of the Royal Air Force. If the scheme of the meeting is well drawn up, and precautions are taken only to admit authoritative communications, the net result for good ought to be very great. But those who draft the programme of scientific work will have to be tactful and firm, for the time at the disposal of the meeting will not allow for much duplication of opinion, or any desultory discussion of the admitted and the obvious. First-hand and new experiences will have to be given all possible opportunity for expression.

PUBLIC HEALTH WORK IN EGYPT.

WE were permitted to publish in THE LANCET some weeks ago the substance of the report of a Commission appointed in the summer of 1917 by the High Commissioner to advise as regards the future organisation and work of the Egyptian Department of Public Health. The Commission was composed of Lieutenant-Colonel Andrew Balfour, Lieutenant-Colonel G. E. F. Stammers, Mr. E. S. Crispin, director of the Medical Department for the Sudan Government, and Dr. Charles Todd, director of the laboratories in the Department of Public Health, Mr. H. Sheridan acting as secretary. It was referred to the Commission to consider the present organisation and duties of the Public Health Department and its relations with other Government Departments, and to make proposals for increasing the efficiency of the Public Health Department. In these circumstances the Commission was authorised to call for all necessary evidence, and was given access to pertinent documents and records.[1] The report is now published by the Cairo Government Press, and we trust that its highly valuable and practical recommendations will shortly be acted upon.

[1] See THE LANCET, Nov. 23rd, 1918, p. 715.

THE STORY OF LETHARGIC ENCEPHALITIS.

THE report on Encephalitis Lethargica, issued under the title of an Enquiry into an Obscure Disease, by the Local Government Board (New Series, No. 121), may justly be claimed as a brilliant vindication of the application of team-work in the elucidation of a medical problem. Attention was drawn to the appearance of the new syndrome by Dr. Wilfred Harris in the columns of THE LANCET on April 20th, 1918. The similarity between some of the symptoms and those which characterise infection caused by food contaminated with the *Bacillus botulinus* created a general anxiety which was natural in the circumstances of the time. A preliminary inquiry was started at once to determine whether food contamination could be held responsible for the outbreak. The result of this inquiry was entirely negative; no direct or indirect evidence of an association of the illness with infection from food was obtained. On the other hand, certain features, particularly the pathological examinations, raised the suspicion that the outbreak might be one of epidemic anterior poliomyelitis, or Heine-Medin disease. With a view to determining the correctness or otherwise of this suggestion the present inquiry was instituted on a comprehensive scale. The results of the well-coördinated investigation—clinical, epidemiological, pathological, and bacteriological—are contained in this report, and the conclusion arrived at is briefly that the disease is identical with that described by Von Economo in Austria and Professor Netter in France, that it is *sui generis* and distinct, both anatomically and clinically, from analogous affections—e.g., acute poliomyelitis. It belongs to the class of polio-encephalitic diseases which are inflammatory in nature, but the inquiry has not yielded any conclusive evidence as to the character of the causal agent. When it is considered that the organism which causes the analogous disease poliomyelitis is still a matter for debate, although thousands of cases have been investigated from the bacteriological point of view, it is not surprising that the problem of the causal agent of encephalitis lethargica is as yet unsolved. Sir Arthur Newsholme in his introductory review says:—

> "Although a negative finding is unsatisfactory, and affords little basis for preventative action, the speedy cessation of the outbreak makes it necessary, for the present, to leave the problem at this point. Possibly a larger number of cases hereafter may supply material for further epidemiological and bacteriological research and animal experiment."

Dr. A. S. McNalty, who carried out the clinical part of the work, makes the arresting suggestion that the relation between acute poliomyelitis and lethargic encephalitis may be comparable to that between typhoid and paratyphoid. He also lays stress on the influence which diminution of resistance in individuals may have on the "evolution" of a disease. The virus may well have been fairly generally present in the human organism and the strain of the years of war may have so altered the resisting powers of certain individuals that an ordinarily saprophytic organism had become pathogenic for them. Such a suggestion is made more probable when the widespread sporadic distribution of the cases in the recent epidemic is considered, and this point is very clearly brought out by Colonel S. P. James in his epidemiological survey of the outbreak.[1] Pathological investigations were carried out by Professor Marinesco, whose services were most fortunately secured through the Medical Research Committee, and by Dr. James McIntosh. Both emphasise the similarity between the lesions found and those of poliomyelitis—namely, cellular infiltration around the smaller veins in the basal ganglia, the upper part of the pons, particularly in the grey matter of the floor of the fourth ventricle, and to a much less degree in the medulla. Both failed to find satisfactory evidence of the presence of a specific micro-organism, and the intracerebral inoculation of monkeys with emulsion of diseased tissues carried out by Dr. McIntosh was void of result. The only striking pathological difference was one of localisation. Yet here combined work supplied the corrective. The masterly analysis of the clinical differences set forth by Dr. McNalty, supported as it is by the epidemiological evidence, leaves no reasonable doubt that the two diseases are separate entities. Sir Arthur Newsholme and his coadjutors are to be congratulated upon this report as an instance of what can be achieved by orderly scientific investigation.

[1] THE LANCET, 1918, ii., 837.

NATIONAL REGISTER OF POPULATION.

AT a meeting on Jan. 6th of the Commission for the Reconstruction of the National Birth-rate an urgent appeal was made on behalf of the Registrar-General by Dr. T. H. C. Stevenson for the establishment of a national register of population, which should supersede the many partial registers in present use. The list already includes, in addition to the national and electoral registers, the school attendance and food registers, and those relating to sickness, unemployment, insurance, and some others. Sir Bernard Mallet, in full accord with his predecessors, lay as well as medical, at the General Register Office, once again revives the official demand for a complete registration system on the ground that the Census, which is the only complete register, is revised not more frequently than once in ten years. It therefore rapidly becomes out of date, and is of little value except for statistical purposes. Practically all the registers now in vogue are independently compiled and maintained, the information contained in each one being seldom available for the purposes of the others. The Registrar-General accordingly proposes that *a single master register* should be inaugurated which should include every man, woman, and child in the country, giving particulars of name, address, sex, age, occupation, and date of birth, together with information as to marriage and family. But inasmuch as no single register could possibly contain all needful information, it is proposed to link up each unit with the general register as part of a coördinated system, providing for the communication to each of the special registers of the information of common interest collected by the general register, and leaving each of them to amplify this according to individual requirements. For this purpose the general register might record, in code form, the necessary particulars, and information respecting removals could be communicated to the local branches as required. As this register would deal with many millions of names it would have to be arranged in local sections throughout the country. Nevertheless, it would be necessary to maintain at headquarters an index to the local registers everywhere. To this

central index all births, deaths, and removals would of course be referred, but it is essential that all local registers should be controlled and coördinated by the central organisation.

With the object of allaying the fears already expressed that the present proposal would result in the exaction of family secrets to which objection might be taken, Dr. Stevenson was able to assure his hearers that the new proposals did not increase in any way the statutory information hitherto demanded from the public. It only altered the form in which it would be required. The Commission resolved—

"That in the view of the National Birth-rate Commission there is immediate need for the improvement of the vital statistics upon which all its conclusions must be based by the formation of a joint register on the lines advocated by the Registrar-General."

The meeting was presided over by the Bishop of Birmingham on behalf of the National Council of Public Morals. The apparently imminent establishment of a Ministry of Health, and the appointment of Dr. Addison and Sir Auckland Geddes as heads of the departments concerned, would indicate the present moment as judiciously chosen for the presentation of the Registrar-General's request. This seems to us reasonable and necessary for the discharge of the additional responsibilities which the establishment of a Health Ministry would entail on his department, and for the fulfilment of which a complete system of registration would be indispensable.

THE EUROPEAN FOOD SITUATION.

WE have received from the Provisional Committee on the European Food Situation (77, Avenue Chambers, London, W.C. 1) a letter signed by Lord Parmoor intended to bring the facts of the European famine, due to the continuance of the food blockage, before the medical profession and to obtain their opinion upon its probable results. The facts are substantiated as regards Vienna by a translation of an article published on Dec. 27th in the *Arbeiter Zeitung* by the vice-burgomaster of the city, and of the statistical material laid before the Inter-Allied Commission by the burgomaster of Vienna. The percentage of deaths attributed with certainty to malnutrition is given as 7 per cent. or over for each month since last July, and there is a presumption that the actual proportion is more than double that figure.

DURING the fourth quarter of 1918 98,998 deaths from influenza were registered in England and Wales; this number, though given officially, is provisional.

AT a general meeting of Fellows of the Royal Society of Medicine, held on Jan. 14th, the conditions were discussed under which pensioners should be admissible to treatment in civil hospitals. We have been obliged to hold over a detailed report of this important discussion until our next issue.—The Council of the Society has decided to have a social-scientific evening once a week for the reception of officers attached to the R.A.M.C. and Red Cross, and officers of the Medical Services of the Dominions, the United States, and other Allied Powers. The reception will be held every Wednesday evening at 8.30, when a short informal discourse will be given, after which it will be free to any present to raise and discuss any question in which they are interested. The first discourse will be given on Wednesday, Feb. 5th, at 8.30 P.M., when Sir John Bland-Sutton will discourse on Gizzards and Counterfeit Gizzards, illustrated by specimens.

Sir Arthur Newsholme's impending retirement from the medical officership of the Local Government Board is announced. The good wishes of the Public Health Service, which he has served so well, go with him.

A COURSE of four lectures on Malaria will be delivered at noon on Jan. 31st, and Feb. 7th, 14th, and 21st, in the Lecture Theatre of the Medical School, King's College Hospital, by Colonel Sir Ronald Ross. Officers and men of the R.A.M.C. are invited to attend. Microscope specimens and lantern slides will be shown at the two last lectures.

THE Council of the National Medical Union decided in December last to invite a mass meeting of the medical profession to consider the establishment of a medical advisory body in connexion with the proposed Ministry of Health. This meeting, which will be open to panel as well as to non-panel practitioners, will be held at the Wigmore Hall, London, W., on Sunday, Feb. 2nd, at 4 P.M.

A special meeting of the Faculty of Insurance will be held on Tuesday next, Jan. 28th, at 7 P.M., at the Central Hall, Westminster, when an address will be delivered by Mr. E. B. Turner (chairman of the Medical Committee for Combating with Venereal Disease) on Venereal Disease considered as an Urgent Health Problem. Mr. P. Rockliff (President of the Faculty) will initiate a discussion on Prophylactic Treatment.

AT the meeting of the Medical Society of London to be held on Monday next, Jan. 27th, at 8.30 P.M., a discussion will take place on "The Modern Treatment of Gonorrhœa of the Genito-Urinary Organs." The debate will be introduced by Colonel L. W. Harrison, R.A.M.C., who will be followed by Dr. D. Thomson, Dr. R. A. Bolam, Dr. A. Cambell, Dr. D. Lees, Dr. David Watson, and Mr. Campbell Williams, among others. Medical officers of the Colonial and Allied Armies will be welcome at the meeting.

THE LANCET, AUGUST 24TH, 1918.

THE Manager of THE LANCET would like to re-purchase or to receive copies of the issue of August 24th for which readers may have no further use, to enable him to replace copies for libraries and institutions in India and the East which were lost at sea owing to enemy action. Such copies should please be addressed to him at 423, Strand, London, W.C. 2.

THE LANCET, VOL. II., 1918: THE INDEX.

THE Index and Title-page to the volume of THE LANCET which was completed with the issue of Dec. 28th, 1918, is now ready, and copies have been supplied gratis to those subscribers who have, up to Jan. 22nd, intimated to us their wish to receive them. Other subscribers will be similarly supplied, so long as the stock remains unexhausted, on application to the Manager, THE LANCET Office, 423, Strand, London, W.C. 2. Such applications should be sent in at once.

PROSTHESIS OF THE LOWER LIMB.

BEFORE the war amputations of the limb were becoming rare; now the number of British sailors and soldiers requiring an artificial leg is about 40,000, a number sufficiently large to give rise almost automatically to inquiries as to the construction of artificial limbs. Although the problems presented by artificial limbs have not been completely solved in the case of the lower limb, a considerable measure of agreement as to the modes of their solution exists; for this reason the following article is limited to the consideration of this part of the subject.

Condition of the Stump.

Before an artificial limb can be fitted the stump must be in a suitable condition for wearing a limb. Owing to the unfavourable conditions under which many of the primary amputations have been performed subsequent trimming operations (or rarely re-amputations) are necessary in the majority of cases. At the beginning of the war 90 to 95 per cent. of amputation stumps seen at a German limb-fitting hospital required a second operation to render the stump painless and capable of wearing a prosthesis, but this proportion during the second year of the war diminished to 75 per cent.

The stump must be covered with sound movable soft parts which, however, must not be excessive in amount, especially if any part of the weight of the body is to be borne on the end of the stump. Excessive mobility of the soft parts of a stump is detrimental. The mobility is brought about by the surgeon, instead of fixing the muscular aponeuroses to the end of the bone, suturing the flexor and extensor masses to each other across the end of the bone and healing taking place without adhesion between the aponeuroses and the bone. When the patient attempts to move the stump the first effect is the movement of the scar to and fro over the end of the bone. When a limb is fitted and the patient tries to walk much power is lost by this movement; friction between the skin and the limb is liable to produce abrasions.

The scar should be thin, movable, and neither eczematous nor ulcerated. Ulceration of the scar often results when a guillotine amputation (usually performed as a temporary measure) is not followed by a re-amputation; the fibrous scar resulting often gives rise to trouble. On flexion of the artificial limb the soft parts of the stump are dragged up, thus interfering with the nutrition of the scar.

When the skin flaps are voluminous a troublesome eczema of the skin is sometimes seen. The skin is usually adherent to the bone; the condition is usually the result of a secondary operation performed while the tissues were in too septic a condition to allow of primary union.

Scars over the end of the bone do not always prevent the use of an end-bearing pad.

A posterior scar is to be preferred in all amputations of the thigh and leg where considerable pressure has to be borne by the front of the lower end of the stump when the artificial limb is lifted or swung forward.

Although the best end-bearing stumps are those in which the section has been made through cancellous bone, end-bearing is possible when the section has been made through the compact bone and medullary cavity of the shaft. In the lower part of the leg the area of bone is too small to permit of end-bearing; in view of the fact that a stump of 7 to 9 inches in length affords sufficient leverage re-amputations are often permissible in this region.

Outgrowths of new bone-forming spurs rarely give rise to trouble; they are seldom large except in the thigh, when they are usually found at the inner side of the end of the bone, a situation not exposed to much pressure.

Other conditions obviously requiring treatment before the fitting of a limb include painful nerves and the presence of sinuses. If necessary surgical measures must be taken to render the movement of the joint above the site of amputation as free as possible; daily passive extension of the hip-joint as soon as the condition of the wound allows does much to prevent a deformity commonly found.

Provisional Appliances.

Universal opinion in Germany, Austria, France, and Belgium is in favour of the use of a provisional limb as early as possible; the use of crutches is not allowed any more than is inevitable. The disadvantages of crutches include the danger of crutch palsy, the alterations of balance caused by the long use of only one leg, and the loss of power in the muscles of the stump. Besides preventing these disadvantages the use of a provisional limb also prevents pain and stiffness of joints; the circulation in the stump is improved, healing and shrinking are expedited, and end-bearing promoted.

In the case of the lower limb the provisional appliances often takes the form of a Thomas's knee splint attached to the body by a suspender passing over the shoulder on the sound side. Flexion of the hip is assisted by the use of a strap attached in front to each side of the splint. The stump is encased in a plaster socket in which the sides of the splint are incorporated. Professor Mommsen uses a plaster socket and fastens to it the finished artificial limb.

Provisional appliances can be used five or six weeks after the amputation.

Construction of the Bucket: Materials Used.

The first point to consider in regard to the artificial lower limb is the construction of the bucket. No definite conclusion has yet been reached as to which is the best material. Although at present in practically every instance the bucket is made of wood or of leather, strengthened with steel supports, both these materials have disadvantages which prevent their being ideal. Leather has a tendency to "give"; the shrinking of stumps after fitting prevents a cavity carved out of the interior of a wooden block to fit a stump in its earlier condition from being satisfactory at a later stage.

Experiments are being made as to the suitability of other materials. The value of such different materials as ply wood and glue, combined with muslin bandages, is being tested. A specially prepared liquid glue is well worked into the muslin bandage while it is being wound round a plaster-of-Paris cast. When dry the surface is rubbed with sand-paper and varnished. The material, it is claimed, is equal to celluloid or acetone, but is very considerably cheaper; it is light, strong, non-flammable and, when varnished, practically impervious to moisture. At La Panne Dr. Martin is experimenting with wood shavings and glue. With a plaster model of the stump as a foundation, he glues together several layers of beechwood shavings, each layer being arranged in a different direction. The glue is especially prepared with the object of rendering it impervious to moisture.

The great advantage afforded by the use of wood is the independence of the external form of the limb of the shape of the socket; this feature is not presented by any other material used in the construction of limbs. Of the various woods used for the purpose, willow is the most popular in England and America. It combines the maximum of strength with the minimum of weight; in addition to being pliable it has the advantage of not undergoing any change of form under the influence of changes in the humidity of the atmosphere. Seasoned wood is best, but unfortunately owing to the greatly increased demand kiln-dried wood must now be largely used; this method of drying increases the liability of the wood to crack.

Methods of Fitting the Bucket.

At Roehampton House the process of making artificial limbs can be seen from start to finish. The trunks of willow are sawn into appropriate lengths for thigh and leg pieces, the bark trimmed off, and the block roughly hewn to its future shape. If intended for a thigh bucket the central portion of the block is "pulled" (drilled out) by a machine. The shapes of the top and bottom of the bucket are roughly outlined on the ends of the block and superfluous portions removed by a band saw.

Various methods are used to ascertain the dimensions of the stump. Plaster casts are still held in favour by some fitters; the stump is bandaged with plaster-of-Paris bandages and allowed to set; with this as a mould a cast is made. Certain precautions are necessary: To reproduce the form of the stump, when wearing a bucket, as accurately as possible the stump is bandaged with the patient in the erect position. To reproduce the alteration of form caused by pressure on the end and sides of the stump by the end-bearing and bucket, a sock is worn over the stump and pulled up tight before the bandage is applied. Care is taken to mould the plaster well on to those points on which pressure is borne; in the case of the thigh the fist brings pressure to bear just below the ischial

tuberosity. When the interior of the socket is being "pulled" trial is made from time to time of the progress by inserting the plaster cast.

Other fitters work "in profile"—measurements are taken, including the length of the stump and its circumference at different levels; a diagram is sometimes made by carrying a pencil along the inner and outer sides of the limb and stump when the patient is resting with his limb in the horizontal position over a piece of paper. The size and shape of the section of the stump at different levels are reproduced in a set of "charts" made of flat pieces of leather or metal, the outline of each chart being a reproduction of the form of the stump at the corresponding level; with these to help him to determine the desired shape the maker "pulls" the interior of the rough bucket.

Adaptation of Buckets for Various Amputations.

Certain amputation stumps, including those resulting from a Stephen Smith and Syme's amputation, are practically always covered with a leather socket. In these cases plaster casts are made, or limb and stump are reconstructed in wood from measurements; on these casts or lasts the leather is moulded. Workers "in profile" claim that they succeed in producing a bucket which grips the stump more closely than when the size of the socket is determined by the insertion of a plaster cast. In the case of a below-knee stump the lateral diameter of the limb is greater opposite the head of the fibula than at the higher level through the knee-joint; if made by cast the diameter of the top of the bucket must be equal to the greatest diameter of the interior, so as to permit the introduction of the cast; in these cases a gap is left between the stump and the inner surface of the socket above the level of the head of the fibula.

In the case of a thigh stump a considerable alteration in the form of the inner surface takes place when the limb is used for walking; contraction of the adductor muscles, especially the adductor longus and adductor magnus, then occurs.

In a recent amputation of the leg of a well-developed man the head of the fibula and the anterior tuberosity of the tibia are not prominent, but soon become so as the stump shrinks. If allowance is not made for these projections they give rise to troublesome bursæ. The plaster mould then gives an impression of the stump in its present form; by altering the "charts" or "lasts" slightly to correspond with the size and shape that experience has shown will within a comparatively short time be assumed by the stump a better permanent fit, it is claimed, is produced.

The shape of the top of the thigh bucket is determined by the ischial tuberosity and the anterior part of the perineum. The ischial tuberosity is the only bony point on which pressure can be borne; to ensure that the tuberosity rests on its upper border the bucket is so constructed that the diameter at this point is less than the diameter of the limb.

The anterior part of the perineum is unable to bear pressure; the bucket must be cut down to clear this part.

In a limb for a thigh amputation the roughly made thigh bucket is "keyed" on to the knee-piece, to which is attached the leg-piece and foot with the boot on; the patient is fitted at least twice while the limb is in the rough state.

Other Points in Regard to the Bucket.

The tendency of all wooden buckets to crack is in the case of the American limbs prevented, or at least the cracking is localised, by the use of a thin covering of raw hide. This membranous covering is thoroughly wetted and spread evenly over the whole of the outer surface of the bucket, exposed to the action of heat, and then varnished; the result is a transparent covering, the presence of which can only with difficulty be detected.

The Hanger bucket is further strengthened by the insertion of screw wires tangentially to the inner surface at levels where experience has shown strengthening is required; in the case of the thigh these wires are inserted at a distance of 1 inch or 1½ inches from the edge of the socket.

A ventilation hole is always provided below the end of the stump; above this hole comes the end-bearing pad, usually made in the form of a net of intercrossing leather laces fastened through small holes to the side of the bucket.

The average life of an artificial lower limb is about three years. In the case of the first limb worn this depends to a considerable extent upon the rate of shrinking of the stump. Every patient wears at least one stump sock; these are of uniform thickness and obtained through the limb-makers. If shrinking of the stump causes the socket to become too large another sock is added The limit is usually reached when the man is wearing five or six socks; the bucket is then lined with leather, and if this does not suffice must be renewed. As a rule the stump ceases to shrink by the end of two years after amputation, but in a few rare instances shrinking may continue as long as seven years.

The Knee-joint.

Other parts of the prosthesis will now be described. In the construction of the knee-joint it is essential that the bolt should be placed behind the centre of gravity of the anatomical joint. If the axis of the artificial joint corresponds in position with the anatomical centre a slight degree of flexion of the knee brings the line of action of the body-weight behind the axis of the joint, when further flexion must occur. If the axis of the joint has been displaced posteriorly the weight of the body falls in front of the axis and tends, instead of producing further flexion, to lock the knee.

The distance the axis is set behind the centre of gravity of the joint depends upon the particular leg-maker. Perhaps the usual distance the axis is set back is between ¼ and ½ inch; this amount, while allowing a sufficient margin of safety, does not interfere with the naturalness of the gait. If the axis is set further back the patient, when bringing from the flexed to the extended position, swings his foot in a slightly longer arc, causing the action to appear unnatural.

During weight-bearing the rigidity of the knee-joint is secured by the simple means of mounting the foot in a position of equinus. When the artificial limb is swung forward to take a step the heel comes in contact with the ground first; then, as the leg becomes vertical, the entire sole lies flat on the ground; with the foot in equinus this position is to all intents and purposes only possible when the knee is hyper-extended. When, therefore, the sole of the foot slopes obliquely downwards and forwards and the weight is taken on the toe the weight of the body acting vertically downwards tends to force the lower end of the thigh-piece into the hyper-extended leg-piece and prevent any movement of the two parts on one another.

As the thigh-piece is attached to the leg-piece by means of a spindle which passes through a metal eyelet hole projecting upwards from each side of the leg-piece, the action takes place between the spindle and the sides of the holes rather than between the surfaces of the thigh and leg pieces.

An arrangement must be provided to extend the leg-piece on the thigh at the appropriate phase of the step. The patient on raising the foot of the artificial limb to take a step raises and moves the limb forward by active flexion of the hip-joint; the weight of the leg-piece causes it to assume a vertical position, and thus bends the knee-joint. But during the weight-bearing phase the leg-piece must be in a vertical line with the thigh-piece. The change of the leg-piece into this position is effected by the action of gravity; when the patient is supporting himself on his sound limb the weight of the artificial limb causes it to swing forward like a pendulum. This movement is, however, both slow and incomplete. Some patients learn to supplement this pendulum movement by flexing the thigh slightly as soon as the foot touches the ground, but although this may suffice when the stump is long and the leverage in consequence powerful, in most cases some mechanism is required if the patient is not to walk with short steps and a mechanical gait.

Control of the knee is effected by cords pulling on the front end of a short lever which has the knee-bolt as a fulcrum, the posterior part of the lever being attached to the back of the leg-piece or the foot. Two cords are provided; these run over a roller and are hooked on to the front and back ends of a double suspender passing over both shoulders. When the patient raises his leg from the ground the weight of the appliance makes the cords tense; the pull on the front of the lever extends the leg-piece. By bracing up his shoulders as he throws his limb forward the patient can assist in the extension of the leg. The object of the roller is to do away with to-and-fro movements of the suspenders across the shoulders, substituting the movements of the cords round the roller inside the knee-piece.

The "knee control" used in the Hanger leg allows of an alteration of the rapidity with which the leg is extended. By tightening the suspender, the distance of the end of the lever from the fulcrum can be altered; a hinge-joint in the lever enables this alteration in length to be effected.

A knee-locking device must be provided for patients who by reason of shortness of the thigh stump are unable to control the movements of the knee-joint, or whose daily life entails much going downstairs or walking downhill. In its simplest form the knee-lock consists of a piece of stout wire running along a canal in the outer side of the bucket; this wire can be pushed down between the knee-piece and the inner surface of the leg-piece, which is guarded at this part by a metal plate; the thick wire serves as a wedge between the two parts and prevents movement.

An automatic knee-lock has been devised by Mr. F. H. Critchley, of Liverpool. The joint consists of a very narrow barrel attached by side-irons to the thigh-piece; circumferentially to this is placed a cylinder of metal attached to the central tube of the leg-piece. The circumference of the barrel is gripped by a band-brake tightened by the pull of a rod attached to the heel. When the weight of the body is thrown on the toe-piece the foot rotates at the ankle-joint, depressing the heel, thus pulling on the rod and locking the knee-joint. This action takes place no matter the position of flexion of the knee when the weight of the body is placed on the artificial limb. When the pressure is no longer exerted on the foot, the knee-joint automatically becomes loose and the leg-piece free to swing. The band normally tends to open by its own resilience, but a compression spring is usually added to ensure the opening taking place. The range of movement of the knee-joint is limited by an external stop.

The Ankle-joint.

A movable ankle-joint is now almost universally used, but the movements are commonly limited to those of flexion and extension. With the boot on, the part of the foot representing the articular surface of the ankle-joint is horizontal. The surface of the leg-piece forming the front of the joint is inclined at an angle of 15° with the ground, the back part at an angle of 30°. The wider posterior angle renders possible the degree of flexion of the foot required when the patient walks downhill.

The following describes an arrangement in common use. On the upper surface of the foot two cavities are hollowed, one in front of, the other behind, the bolt of the ankle-joint; in each of these cavities is placed a cylinder of rubber, the posterior about twice as high as the anterior. On these cylinders rests the leg-piece, ending in front in a short instep lying within the cavity hollowed out in the foot. The foot is attached to the leg-piece by a bolt made in the form of an inverted T; the base formed by a steel tube which fits into two corresponding grooves in the leg and foot is attached to the leg by the vertical part, a rod which is secured by a nut at the bottom of the hollow of the leg-piece. Upon the steel tube moves a steel U-shaped staple, the two ends of which pass through the foot and are fastened in position by two nuts secured by a locking-nut.

The ankle-joint must be kept tight enough to prevent any side motion, but not too tight to interfere with the movements of flexion and extension. The freedom of movement of the joint can be altered by tightening the nuts and compressing the rubbers, or *vice versâ*, or by altering the size of the rubber buffers. If the locking-nut is not kept in position the foot works off and breaks.

The Foot.

The foot is now usually made of wood. To allow of its bending when the patient comes forward on the front part of the foot for the next step the foot is divided transversely at a level corresponding to the middle of the metatarsal bones. The front part is attached by a dorsal and plantar piece of leather or rubber reinforced by wire; between the two parts are two rubber cylinders which, when the limb is at rest, keep the toe-piece extended at an angle of about 15°, but allow of extension to 45° when the foot is pressed on the ground.

As mentioned above, the foot is mounted in the equinus position; the heel is 2 or 3 cm. off the ground, the usual height of the heel of a boot. The foot should point slightly outwards, as in the normal standing position, the usual angle being 18·5°.

Amputations Through Hip-Joint and Upper Thigh.

Special considerations for each amputation remain to be dealt with. For amputations through the hip-joint the "tilting table," perfected during the war, is the most satisfactory appliance. It consists of a leather socket moulded round one half of the pelvis, reaching upwards as high as the iliac crest and attached to the trunk by a pelvic band. The pelvic band is a steel girdle which rests on the iliac alæ and extends a short way in front of each anterior superior iliac spine; it is covered with leather and buckled together in the front. The metal is moulded to the patient's body while in a soft state, and is then tempered. To the socket an artificial limb is attached by steel supports.

To enable the patient to bend the limb at the level of the hip-joint when he sits down a hinge-joint with a spring lock is placed in the outer steel support; this joint automatically locks when the patient rises, enabling him to walk with a rigid leg. On the inner side the steel piece runs around on a quadrant fastened to the under surface of the leather socket.

The "tilting table" has also proved to be the most suitable appliance for high amputations of the thigh, leaving a stump of less than 7 inches in length. These stumps are often incurably flexed and abducted; also the patient with so short a stump is unable to control an artificial limb. When wearing this appliance the patient sits on his flexed stump, the end of which protrudes slightly through a hole in the front of the moulded socket.

If a patient with an amputation of the thigh has difficulty in controlling the artificial limb, a pelvic band should be fitted. A properly fitted pelvic band not only ensures firm fixation of the limb, but also prevents eversion of the foot and rotation of the bucket.

Amputations About the Knee.

A complete end-bearing is often possible in the case of amputations through the condyles of the femur, disarticulations of the knee, and very short stumps below the knee.

If a wooden bucket is to be worn, owing to the bone at the lower end of the stump being larger than at a higher level a modification of the bucket is necessary to ensure its gripping the stump firmly. The front of the lower half of the bucket is cut away and the wood replaced by leather, which laces in the middle. It is perhaps more usual of late, instead of using a wooden bucket, to encase these stumps in a tightly fitting case of sole leather.

When a transcondylar operation has been performed before the plaster mould is made it is as well to pad the edges of the cut femur. The length of the stump does not leave sufficient room for the use of a knee-bolt; movement of the knee-joint is permitted by two hinged side-steels identical with those used for below-knee amputations; these steels lock dead tight when the knee is in the position of extension.

Amputations Through the Leg.

A wooden socket can be fitted to amputations through the leg if the stump is at least 6 cm. long, if the knee-joint moves freely and can be fully extended by the patient, and if no adherent scars are present round the tuberosities of the tibia. The wooden bucket is fitted accurately to the head of the tibia and to the lower portion of the patella; it must grasp the tuberosity of the tibia firmly. The patellar tendon is capable of weight-bearing. Care must be taken lest the bucket press on the head of the fibula; a deep concavity must be present at this point.

The shape of the top of the bucket is important. To avoid nipping the flesh between the upper edge of the bucket and the lower end of the thigh corset, both these edges must be concave; a concavity of a finger's breadth below the axis of the joint suffices. The back of the socket is flattened; if hollowed out too much at this point the stump is tilted forward and the flesh at the back of the knee pinched.

The leg is usually attached to the thigh by a leather corset; side steels, hinged at the knee, connect the corset and socket.

The shorter the stump below the knee the larger the bearing surface, and therefore the better the end bearing; but on the end of any round stump, provided an adherent scar is not present, a part of the weight of the body can be borne. Occasionally, however, it is found necessary to fit a leather thigh bucket reaching up as far as the ischial tuberosity, which bears part of the weight.

The wearing of braces increases the stability of the limb and allows of looser lacing of the thigh corset, with the consequent advantage of freer movement of the thigh muscles. The braces pass over the shoulder of the sound side and are attached either to the thigh corset or the leg-piece. If the stump is short it is an advantage to attach the brace to a strap from which two branches pass down in the form of an inverted V and are fixed to the front of the leg-piece.

In the case of short stumps a leg socket should be fitted whenever possible; with the kneeling leg the gait of a patient is much less natural than when a socket is worn. When the patient has to walk on the bent knee a moulded leather bucket is provided, similar to that used for transcondylar amputations; a posterior band passing over the end of the flexed stump helps to keep the artificial limb in position.

Syme's and Chopart's Amputations.

In a Syme's amputation the end of the stump should be able to bear the weight of the body. The stump is usually fitted with a leather bucket strengthened with steels, usually four—an external, an internal, and two anterior; it rests on a cushion within the bucket. An elastic strap is attached to the top of the instep and above to each side of the front of the socket.

If the end of the stump remains sensitive the patient must wear a leg bucket, embracing the head of the tibia. In rare instances a thigh corset, with side steels jointed at the knee, must be worn.

In a true Syme's a sufficient vertical depth exists below the end of the stump for the joint to be placed at the level of the normal ankle. If the malleoli have been left the joint must be placed in the lateral steels outside the boot.

Chopart's amputations are often unsatisfactory; in about half the cases the action of the tendo Achillis and the tibialis posticus causes the foot to assume a position of equino-varus when the patient walks on the anterior end of the os calcis and astragalus. If the position of the foot is satisfactory a leather casing is moulded accurately to the foot and ankle and attached to the instep of the anterior half of the foot. Side steels are usually necessary; these should be jointed opposite the ankle-joint to permit of free flexion of this joint.

Standardisation.

Finally comes the question of standardisation. The large number of artificial limbs required has caused attention to be directed towards the possibilities in regard to this. The chief advantage to be gained from standardisation is the ease with which a damaged part can be replaced; a certain saving of money will also be effected, but only slight, because the cost of a limb is due not so much to the expense of the material as to the cost of labour. Another advantage would be the possibility of ensuring the same quality of material in each limb.

It is obvious from what has been written above that standardisation of the bucket is impossible, but standardisation of the component parts of the limb is possible in many cases.

The Army, before and in the earlier stages of the war, was composed of men of more or less similar physique; certain standards as regards height and chest measurement were maintained, with the result that the physique of the average soldier ranged within circumscribed limits. Even later in the war when these standards were more or less abandoned, by a process of more or less conscious selection, the men in the fighting line were in most cases similar in physique to those of the earlier Armies.

On analysis of the measurements of men with amputations it was found that, excluding about 15 per cent. for the purpose of fitting artificial limbs, the sizes of the various parts required could be grouped into four—four sizes of feet, four sizes of leg-pieces, and four sizes of knee-pieces. With these three parts 64 combinations can of course be made.

The four sizes of feet correspond with Nos. 7, 8, 9, 10 sizes in boots. The leg-pieces are of such a form as to be suitable for the tall thin man, the man of average height and proportions, the short stout man, and the bantam—i.e., the small, well-proportioned man. It is the exception for a tall man to possess a big calf. A fat man over 6 feet in height probably suffers from some physical disability which would prevent his being accepted as a soldier; the tall very muscular man with a well-developed calf would be included in the 15 per cent. of exceptions. The four sizes of knee-joint correspond with the different sizes of leg-pieces and feet.

One size and form of ankle-joint suffice for all sizes of the other parts. The knee-bolt, with side plates fastening on to the leg-pieces, are made in four sizes, corresponding with the different sizes of knee-piece.

Another part which it is possible to standardise is used for below-knee amputations: this is the side steels for which one size only suffices.

THE INTER-ALLIED FELLOWSHIP OF MEDICINE.

A WELCOME TO THE HARVARD MEDICAL UNIT.

THE Executive Committee of the Inter-Allied Fellowship of Medicine gave a dinner at the Connaught Rooms, Great Queen-street, on Jan. 15th to the members of the Harvard Medical Unit at present paying a short visit to London, and on their way home from France, having served with the British Army since the second year of the war. Sir WILLIAM OSLER, the chairman of the Executive Committee, presided over a distinguished gathering of medical men who acted as hosts to the Harvard Unit. A letter of regret having been read from the American Ambassador for his inability to be present, the toast of "Health and Prosperity to the Harvard Unit" was given by Dr. NORMAN MOORE, President of the Royal College of Physicians of London.

Dr. NORMAN MOORE said:—

This afternoon I was examining a portrait of the first Fellow of the Royal College of Physicians, Dr. John Chambre. He was elected a Fellow of Merton College, Oxford, in the year in which America was discovered. The portrait was a most beautiful copy by Isaac Oliver of a work of Holbein, and as I examined its wonderful execution I was interrupted by a message asking me to propose the health of the Harvard Unit at this dinner, so I had at once to turn my thoughts to America, which I had never visited, and to Harvard, the fame of which we all know. I remembered that in the ancient church of St. Bartholomew, which stands over the way near the hospital with which I have been connected all my professional life, there is the richly adorned tomb of Sir Walter Mildmay, Chancellor of the Exchequer to Queen Elizabeth. He was a Puritan, and there are no figures upon his tomb, not even his own effigy, and, in addition to his epitaph, only the very serious inscription, "Mors nobis lucrum." He was the founder of Emmanuel College, Cambridge, where Harvard was educated. It is a college not unconnected with medicine; indeed it comes into the history of Sydenham, one of the most illustrious of English physicians, since he wrote one of his medical epistles to Dr. Henry Paman, who became a member of Emmanuel in 1643, and was a life-long friend of his. As I looked into my memory I regretted more and more that I had never been to America. What can that famous land be like? Our old writers said El Dorado was there. In our day, when the place of some famous picture is vacant on a wall and we ask where it is, the answer is, that it has gone to America. When a library of rare books has empty shelves and the visitor asks where the books are, the answer is the same—America! Wonderful land, well knowing how to put the riches of El Dorado to good purpose. I am glad that its inhabitants should enjoy pictures and books which are worth seeking in our old world, and that they are worthy to enjoy them. But your country has a finer product than gold, a greater store at home, a nobler export to improve other nations. It produces the greatest of all the products of the world—men. The Harvard Unit is a collection of observant, ingenious, laborious, and thoughtful men, who brought their energies to help England's need, and I offer them affectionate salutation, regard, and gratitude.

Lieutenant-Colonel HUGH CABOT, C.M.G., R.A.M.C., Commanding (Harvard Unit) 22 General Hospital, responding to the toast, said:—

Now that the "Harvard Unit" has ended its mission and, like the many things referred to by Dr. Moore a few moments ago, is about "to go to America," it is perhaps possible to estimate in some degree what has been its effect and what it has really accomplished. It was the outcome of a great spirit of restlessness which existed all over the United States as the attempt to "keep the country out of war." It is perhaps not unnatural that this spirit should have been particularly evident at Harvard and that she should have desired to assist the country from which she sprung in the defence of democracy. Many of the plans with which we started, and particularly our surgical equipment, had to be revised as not suited to the existing condition, of which we were naturally ignorant. Only the other day in winding up the affairs of No. 22 General Hospital, B.E.F., which this Unit has carried on since July, 1915, I found that we had in hand a very large number of surgical instruments which had not been out of their original cases, and which, though not well suited to the surgery of war, will, I believe, be found well adapted to the usages of peace. They have been presented to St. Bartholomew's Hospital as a token of our appreciation of many kindnesses and much assistance given by Major-General Sir Anthony Bowlby.

The original conception of the Unit was that it should provide the staff of a British base hospital for a period of three months, and that it should then be succeeded either by Columbia or Johns Hopkins. This plan, however, fell through, and it devolved upon Harvard to continue the work alone if it was to be done at all. It was not, however, until December, 1916, that the importance of service for the duration of the war was realised, and at that time the Corporation of the University voted to continue the Unit for duration, and the officers were given commissions in the R.A.M.C. Then, for the first time, it was possible to make plans for the future, and develop the Unit into an efficient and hard-hitting organisation. We cannot, I think, claim to have contributed much that is new or strange to the surgery of war, and perhaps if we had done so we might have laid ourselves open to the charge of being aggressively American. We have, however, tried to turn out a large amount of satisfactory work, and no matter how great the pressure for help might be we have always been able to find some. We have, to some extent, acted as a clearing house for American ideas, and have done something to extend the use of direct blood transfusion in the treatment of hæmorrhage and shock.

Looking back now I believe that our most important work has been in bringing together the profession on both sides of the Atlantic.

We have sent many officers to work with clearing stations in forward areas, and in this way have brought them in contact with the British brethren. It is only since I have been intimately associated with Englishmen, Scotchmen, Irishmen, Canadians, and Australians that I have come to realise that we were, in fact, the same blood—that the differences were wholly superficial, though at times very apparent. These differences are largely matters of manners and mode of expression. The American, for instance, almost always overstates his case, and his use of superlatives is exceedingly common. The Englishman, on the other hand, generally understates his, and often appears to be trying to conceal the fact that he has a case at all. His very modesty may make him appear to his American brother as a dull fellow without much to say for himself. The American always puts his best foot foremost and selects with care that which is best polished, whereas the Englishman is likely to put forward the one that is least presentable for fear someone might think that he was trying to attract attention. Though these habits and manners nowhere touch the essentials of the man they make a brave show, and to the superficial appear to be important, and do, in fact, delay progress in the close association which we must have in the future. On the other hand, I have been deeply impressed by the fact that in a close working association Englishmen and Americans soon come together, and each sees and admires the qualities of the other. Therefore, I say to you that we must not be satisfied with a superficial relation, but must work for that close working union which alone can cement the bond. The only League of Nations which seems to me immediately possible is a working union of all the branches of the Anglo-Saxon race, and this is within our grasp. Anglo-Saxon unity must precede any League.

It is to this bringing together of the British and Americans that we have most effectively addressed ourselves. We have been part and parcel of the British Service and have given it the best that we had to give. At the same time we have "with a decent respect for the opinions of others," maintained our own manners and customs, and have perhaps lived with somewhat greater freedom and worked and played a little harder than sound British custom would sanction. We have been a gathering place for all sorts and conditions of men, and we desire to acknowledge the debt we owe to Sir William Osler in helping forward this mixing of professional men and women from both sides of the Atlantic.

Sir STCLAIR THOMSON, joint honorary secretary with Mr. Douglas Harmer and Mr. J. Y. W. MacAlister of the Inter-Allied Fellowship of Medicine, then proposed the health of the Fellowship, describing it as "a very young person; in fact, a true war baby." The origin of the Fellowship, he said, was a visit to the United States last summer by Sir Arbuthnot Lane, Sir James Mackenzie, and Colonel H. A. Bruce, who on return brought the message that American medicine was looking to London to replace Berlin and Vienna as the Mecca for the English-speaking doctor. He continued :—

The objects of the Fellowship of Medicine might be grouped under four principal headings.

1. The coördination of all the resources of medical interest throughout this country, so as to make them readily available for demonstration and investigation.

2. Initiation of schemes of scientific entertainment. These would embrace the arranging of facilities for visits to, or courses of study in, the various clinics, laboratories, museums, and other medical institutions; the regular attendance on any one particular service, or course of lecture, or demonstration, and, in addition, the preparation of specially arranged addresses, demonstrations, or scientific visits.

3. Later on the Fellowship would be actively helpful in collecting and distributing information and in facilitating visits to overseas medical schools, meetings, and congresses; in being a centre through which the temporary occupation of professional chairs or exchange of professorships might be arranged.

4. The promotion of personal friendly intercourse between the members of the profession in this country and their brethren from overseas.

To promote these objects a centre had already been granted through the kindness of the Royal Society of Medicine at No. 1, Wimpole-street. There arrangements would be made to collect, file, and circulate information on all matters of medical interest. Rooms would be available for conferences, discussions, demonstrations, or exhibitions. In fact, the Fellowship of Medicine would act as a sort of central Cook's tourist office for travellers in the medical world.

The primary object of this association is not to arrange post-graduate study. This is the care of a separate association, which is also under the ægis of Sir William Osler and with which there would be the most friendly coöperation. But post-graduates were particularly desirous of continuous and intensive training in one or more circumscribed departments of medicine. Now the Fellowship caters for all visitors, not only those seeking post-graduate classes, but also those wishing to study our medical history, our institutions and organisations, our hospitals, infirmaries, dispensaries, asylums, fever hospitals, lying-in institutions, nursing homes and sanatoria, or our State and municipal hygienic arrangements. We propose to help them to hear and join in the scientific medical life of this country and provide them with entertainments of medical interest. We will help them to see any one particular man operate or hear any special clinical demonstration; to work in any laboratory or study or in any library; to visit any asylum or investigate any system of drainage. We, ourselves, are so apt to work in water-tight compartments that we forget all about the wealth of this country in other matters of professional interest which lie outside our own practice or study.

Sir StClair Thomson went on to show that the organisation of a complete course of post-graduate teaching must require time, but that they had already been able through the help of State departments and the courtesy of the deans of the London medical schools to arrange opportunities for giving scientific hospitality to Dominion and American surgeons. The Director-General of the Army Medical Service, Sir John Goodwin, had already coöperated by arranging with the Deputy Directors of Medical Service in command in the United Kingdom to institute facilities for mutual collaboration. The future coördination and arrangements for instituting a great post-graduate centre would require detailed, exacting, and continuous work, and Mr. Douglas Harmer was now associated with Mr. MacAlister, the first motive force of the movement, in perfecting their programme. Sir StClair Thomson concluded by referring to the fact that Lieutenant-Colonel Hugh Cabot was the direct descendant of the pilot, Sebastian Cabot, who used to sail out of Bristol city, and was the real discoverer of the Western Hemisphere.

Sir ARBUTHNOT LANE congratulated the Fellowship Society in its good fortune in being able to fix its paternity on Sir William Osler, who would make an ideal chairman.

"He is fortunate," he said, "in possessing all the progressive capacity of our trans-Atlantic brethren combined with the tenacity of the Briton. While, as occasionally happens, doubts may arise as to the paternity of the offspring, none can exist as to the maternity. This we owe, as we do so much else, to the originality, tact, indomitable energy and wisdom of our very old and beloved friend Mr. MacAlister. Wherever trouble arises Mr. MacAlister is the man who, in the most inconspicuous manner possible, has the capacity and ability to develop new ideas or to put things straight." Sir Arbuthnot Lane was certain that the young Fellowship would grow rapidly and would require no artificial food to hasten its growth. There was enough material in London and the provinces to produce a field of study that would compare very favourably with that in any part of the world. He would like to take this opportunity of expressing to the medical departments of our Dominions also the deep debt the profession wholly in the mother country owed them. He looked to them for invaluable help in making the new Fellowship the greatest possible success.

Sir JOHN GOODWIN, the Director-General of the Army Medical Service, said :—

I may perhaps claim a longer acquaintance and friendship with the Harvard Unit than most of those who are present to-night. I first had the pleasure of meeting this Unit when in France in 1915. I had the good fortune of knowing many of the officers intimately and saw much of their work, which was of an extremely high standard, and that standard has been consistently maintained throughout the war. I think I am correct in stating that more than 150 000 British soldiers have been treated and cared for by the Harvard Unit during its stay in France. May I ask you to think what that means in the way of actual assistance to our medical service, and may I suggest that, splendid as this record is, there is also something more, something not quite so tangible but equally valued by us, and that is the sentiment of brotherhood and affectionate feeling which was brought home to all of us when the Harvard Unit came over to France in 1915 to work with our armies and to succour our wounded. The members of the Harvard Unit endeared themselves to all of us, and we eagerly welcomed the many hundreds of medical officers and nurses who, immediately the United States entered the war, and many even before that date, volunteered for service with the British Armies and were of untold assistance to us, both in this country and in the theatre of war overseas.

I am sorry to say that there have been many casualties, many deaths; in view of a medical officer's duties in modern warfare this was inevitable, and the American officers were always eager for front line work; their honoured memories will remain with us for all time. One often hears discussion as to the international sentiment between America and ourselves during the past and in the present. With regard to this an old Arab proverb has very often occurred to me. I first came across it when studying Arabic in the East many years ago. The literal translation runs as follows:—

"I and my brother may differ, I and my brother might possibly quarrel, but—it is my brother and I together against the whole world."

The Harvard Unit is now returning to the United States, leaving behind it a splendid record of work performed and carrying with it the respect and affection of everyone who has ever met any of its members or seen its work. We wish them Godspeed and all possible happiness and prosperity in the future. In saying this I am conveying the thoughts and wishes of my whole service.

General G. L. FOSTER (Canada) said :—

It is with peculiar pleasure that I join with other speakers to-night in wishing the members of the Harvard Medical Unit God-speed on their homeward journey after three years of war labour. How well I recal their arrival in France during the summer of 1915; an event which meant to those of us from America—Canada being in America—that the United States would eventually join the Allies in the great struggle to uphold the right and liberties of mankind and to avenge the outraged women and children of Belgium and France. For the sending of such men as Harvard and other Universities of the United States sent to us in those early months was bound to have a far-reaching effect throughout the whole country, and awaken men and women in all walks of life to the justice of our cause. And now that the war is at an end, right having prevailed, we all shall sooner or later have returned to our several homes with the warmest feelings of friendship for those who suffered side by side with us these weary years. That friendship will ripen into a true fellowship of two of the world's greatest people to safeguard the world against future wars. The enemy and their leaders will receive a just judgment. We may hope that they will return to their senses, and cease from following that false kultur which is even now sinking in the afternoon of history and will in time be swallowed up in the thick night of oblivion.

Sir W. WATSON CHEYNE, M.P., then proposed the health of Sir William Osler. He said :—

Sir William Osler is well known to the medical profession all over the world for his writings and speeches and his general learning, but he occupies a peculiarly important position in connexion with the project of an international Fellowship of Medicine, especially a Fellowship of

the English-speaking races, because he has held professorships in three great countries and universities. Beginning as Professor of Medicine in Canada, in the University of Montreal, he was invited to hold a similar position in the Johns Hopkins University in the United States of America, and in the fullness of time he was invited to bring his now ripe and varied experience to the Old Country and to take up a similar position in the venerable University of Oxford.

As you have heard to-night, Sir William Osler is the chairman of the committee which is working out one part of the scheme of this Fellowship—viz., that of rendering the wealth of clinical material which exists in this country available for post-graduate study as well as our great stores of pathology in various museums, of which the great type is the Royal College of Surgeons of England. But, as Sir StClair Thomson has pointed out to night, the Fellowship to be successful should also have another side—viz., that which promotes friendly intercourse between the medical men of the various nations, of which the first attempt—and I think a highly successful attempt—is our meeting here to-night.

This is the age of young men, and we have it on very high authority that we cross the watershed of life about 40, and thereafter gradually go down the hill. I therefore ventured to suggest the other night that we might divide the work of this Fellowship according to the ages, the men up to 40 being engaged in imparting knowledge in the post-graduate work, while the men at a later period of life do more on the social and entertainment side. Of course, we could not draw a very hard-and-fast line, for some might think that the experience of the older men might be of help in the post-graduate work, while the vivacity and energy of the younger men might add to the joy and pleasure of the social side. So perhaps my suggestion was not quite seriously meant and may not be taken up. I ask you, ladies and gentlemen, to drink to the health of our most popular chairman, Sir William Osler.

Sir WILLIAM OSLER responded as follows:

After thanking the company for their kind response to the toast, the chairman said that among the advantages of advancing years was the knowledge one might have of three generations, and this was his position with regard to the profession of Boston, which may be called the *cortex cerebri* of the United States. Oliver Wendell Holmes's Brahmin class existed in a larger proportion in the profession of New England than in any part of the English speaking world. It was a peculiar pleasure to him to welcome the Harvard Unit, which contained grandsons of men whom he had known well in the seventies. Opposite to him sat Major George Cheever Shattuck, whose father, Frederick Cheever (a friend of student days in Germany and Professor of Medicine at Harvard) was the son of the distinguished George Cheyne, also a Professor of Medicine, the son of George Cheyne (*primus*), called after the famous English physician of that name, and son of Benjamin Shattuck—all of whom had practised medicine in Massachusetts—*caute, caste et probe*. Five generations of Warrens had served Harvard and the Massachusetts General Hospital—John, at present in the anatomical department, son of J. Collins, still alive and well and an honorary F.R.C.S., whose ancestors, Jonathan Mason, John Collins, and John Warren (the founder of the Harvard Medical School) were great figures in Boston. And there were many other medical families—as the Bowditches, Jacksons, Bigelows—which had given an hereditary distinction, as rare as it is valuable in the profession of any city.

The New England spirit—the keen sense of right and wrong, and the desire to help, inspired Harvard to send this Unit long before America could enter the war as a united nation. And they were fortunate in the choice of the man who has had charge. Dr. J. William White, of Philadelphia, at the outbreak of war, and until his untimely death, fought the battle for the Allies against Germany in a way I hope we shall here never forget. And our chief guest and his brother, Dr. Richard Cabot, early entered the propaganda, but they did not confine their work to the Eastern States where sympathy was largely with the Allies, but they went West to the strongholds of German influence and held public meetings, sometimes in the face of stormy and even disorderly opposition. A rude little rhyme about the Cabots indicates their position in popular opinion:—

> Here's to good old Boston,
> The home of the bean and the cod,
> Where the Cabots talk only with Lowells,
> And the Lowells walk only with God.

The Unit returns with the grateful thanks of all classes of this country for the good work it has done in the relief of the British wounded; and it is a happy augury for the future of our Fellowship that its first official act has been to greet our brethren from overseas and to wish them a happy and a safe return.

It was allowed on all sides that the dinner should prove an admirable introduction to a great movement.

THE REPORT ON DUBLIN HOUSING.

THIS report, by Mr. P. C. Cowan, D.Sc., M.Inst.C.E., is of far more than local interest, since Dublin's housing problem fundamentally resembles that of many other towns, though perhaps few have so much leeway to make up before a tolerable standard of housing is reached. For in Dublin more than 40 per cent. of the population "urgently required improved housing at the end of 1913," and conditions are much worse now. Mr. Cowan has faced the whole situation in the bold and thorough way which those who know him would have expected.

The immediate task is to build 16,500 houses with the least possible delay, and Mr. Cowan suggests replies to the many vital questions involved in their erection. Who is to build and manage them? Where shall they be built? How many shall be built per acre? What size and type of house shall be built, and of what materials? His recommendations on these matters are worthy of careful study, for they are based on the long experience and close thought of a man who combines a practical knowledge of building with a sympathetic insight into the human needs of the people to be housed. He realises that in all our schemes we must remember that we are building not only for the present but for the future. Wages are rising, and with them the standard of comfort. Houses *just good enough* to-day will not be good enough to-morrow.

"It would be a most grievous and irretrievable error," says Mr. Cowan, "to base the standard for new houses on the present homes, habits, and incomes of the poorer classes in Dublin. In many cases they only require the opportunity to respond to better environment, and it should be remembered that the standard of housing has risen steadily for many years, and that the houses erected now may have to serve at least two generations."

This is advice which all those who build under the present Government scheme will do well to remember. Mr. Cowan's recommendation that only 10 houses should be built per acre is quite in accord with up-to-date practice; but, as land near the centre of Dublin is very dear, he recognises that if such a limitation is observed the provision of adequate transit facilities would be a necessary corollary. The absence of such facilities, and the practice—soon, all must hope, to pass away—of starting work at 6 A.M., compel too many employees to live close to their work. Hence the anomaly to which Mr. Cowan draws attention—that "poor people, as a rule, live on dear land, and rich people on cheap land."

In connexion with transit, Mr. Cowan makes the interesting suggestion that it may eventually be provided free, just as roads and footpaths are. This is by no means as impracticable a policy as it may appear at first sight. The late Alderman William Thompson, in his "Housing Handbook Up to Date," states that:—

"The cost of equipping suburban land with trams may be taken at £25,000 per mile for initial capital outlay, or including working expenses and loan charges £5000 per mile per annum. This is on the assumption that there is in each direction a five-minute service for 12 hours each day, and a ten-minute service for another six hours, or a total of 131,400 car mile per annum, and that the inclusive cost is 9½*d.* per mile—an outside estimate.

"It is difficult to say how much land could be served by a mile of track, but reckoning 15 minutes' walk as the maximum distance on either side of the trams, we get an area of, say, 1760 by 2500 square yards, or 1000 acres, so the annual cost of free tramway equipment may be put at £5 per acre per annum, and this sum capitalised at 30 years means £150 per acre as the initial capital outlay per acre; that ought to be sufficient to convert comparatively inaccessible land into accessible building sites, with free trams running to and fro for 18 hours each day. Now assuming an average of only four houses to the acre, this means less than 6*d.* per house per week rent, to include free travel."

This is considerably less than would be saved in rent by living away from the town, not to speak of the advantage of having a house surrounded by a garden instead of being wedged into a sordid street.

Almost the whole of Mr. Cowan's report is full of excellent suggestions and wise counsel. But in considering the number of bedrooms which should be provided per house he adopts a point of view which is curiously at variance with his general attitude. On the strength of some very unconvincing statistics he recommends that no less than 60 per cent. of the houses built should only have two bedrooms. Here he runs counter to all modern ideas; unquestionably it would be a catastrophe if his advice were followed. We positively *must* get away from the two-bedroomed house, which, when occupied by a family is quite inadequate, whether to meet the requirements of health or decency. One of the serious difficulties that we have to face to-day is that more than half the houses in the British Isles have only two bedrooms or less, whereas, judging from the Census returns, considerably over a million of these should have three bedrooms or more in order to meet the minimum housing requirements of their occupants. Surely, not a shadow of a case can be made out for adding to the number of two-bedroomed houses, save in the rarest cases.

But this is only a momentary "lapse from grace," and Mr. Cowan's report is a fine piece of work, and should be widely read. The plans at the end, illustrating the houses which have been erected by various Irish municipalities, should, however, be studied with discretion, since obviously only some of them are meant to be examples, while the others are warnings against what to avoid.

Correspondence.

"Audi alteram partem."

THE FUTURE OF THE AMERICAN RED CROSS IN PARIS.

To the Editor of THE LANCET.

SIR,—A permanent Chapter of the American Red Cross has been formed in Paris, known as the Paris District Chapter, and of said Chapter I am the chairman. It is proposed that this Chapter shall be the permanent organisation of the American National Red Cross in France, and its functions will be to carry on to a conclusion the work inaugurated by the American Red Cross after the Commission to France which during the war has been in charge of said work has ceased to exist. After the completion of this work it is proposed that the Chapter shall continue to perform all functions ordinarily performed by a Chapter of the American National Red Cross. It is impossible at this time to foresee just what the character of this work will be, but among other things it may involve the care of the graves of American soldiers and sailors buried in France, and also to have an organisation constituted and capable of carrying on any work that it is proper that the Red Cross should do.

I am, Sir, yours faithfully,

GURNEY E. NEWLIN,
Major, A.R.C., Chairman, Paris District Chapter.

4, Place de la Concorde, Paris, Jan. 17th, 1919.

CAUSES AND INCIDENCE OF DENTAL CARIES.

To the Editor of THE LANCET.

SIR,—Dr. Harry Campbell's courteous reply to my inquiry is somewhat confusing. In your issue of Jan. 4th he states—

"I have again and again referred to the prosaic fact that there are among the inhabitants of this country 200 million carious teeth, as many alveolar abscesses (pyorrhœa alveolaris), and some 30 million root abscesses."

I ventured to ask for evidence of this "prosaic fact," and Dr. Campbell replies by stating that—

"Taking the population of the United Kingdom as 45 millions, this, according to my estimate, implies for each individual 4½ carious teeth, 4½ alveolar abscesses, and 2 root abscesses for every three persons. Does this estimate strike Mr. Pedley as excessive?"

To Dr. Campbell's question I answer frankly: very excessive! Not in accordance with my experience; but *that is only my opinion.* Surely calculations based upon such estimates are not facts. *Facts are truths,* and can only be regarded as such when supported by irrefutable evidence. Here is an illustration. Dr. Campbell quotes extracts from Dr. James Wheatley's report of 1914 to the education committee of the Salop County Council as to the prevalence of dental caries among elementary school children, and if it is remembered that the percentages include temporary teeth as well as permanent teeth I entirely agree, because it accords with the evidence of the Schools Committee of the British Dental Association, and it has been amply proved by 1000 school medical officers during the past ten years, as recorded in the annual reports of the Chief Medical Officer to the Board of Education. One brief quotation will suffice. On p. 29 of the 1915 report it is stated—

"The proportion of defective teeth including all degrees of defect is higher than in any other malady, and often exceeds 70 or 80 per cent."

Curiously enough, Dr. Campbell seems to refute part of his estimate, for he writes:—

"When we come to examine adults we find that a considerable proportion of carious teeth have been extracted owing to the trouble they have caused, so that the number of carious teeth in a given mouth does not represent the number of permanent teeth which have become carious within it."

Either the 45 million inhabitants have the 4½ carious teeth or they have not.

With regard to the 4½ alveolar abscesses (pyorrhœa alveolaris), these diseases are not identical. Alveolar abscesses are in the majority of cases root abscesses. Pyorrhœa alveolaris is suppuration at the necks of the teeth with slow destruction of the alveolus. The dental surgeon differentiates them, as the physician does pneumonia from pleurisy. Therefore the 4½ alveolar abscesses, and the two root abscesses for every three persons, may be added together. I do not understand Dr. Campbell's estimate of pyorrhœa alveolaris. His endeavour to find figures for me in 17 men "hastily examined" reminds me that, like many of my colleagues, I have examined during the past four and a half years quite a large number of soldiers' and sailors' mouths. I believe it is possible to identify, clinically, four or five different forms of suppurative inflammation of the gums which at first might be described as pyorrhœa alveolaris, but which heal up under appropriate treatment without the loss of any teeth.

In conclusion, I deplore the extent of dental caries and its effects, but I think much harm may be done by loose statements and exaggerated ideas. Experience has taught me that there is no royal road to the prevention of dental diseases. To believe that our nation will alter its diet to save its teeth is chimerical. The chief safeguards are habitual cleanliness, systematic inspection, and early treatment. Much has been done during the past 20 years to help the children in our residential Poor-law schools, and an excellent beginning has been made during the past 10 years by the establishment of 300 school dental treatment centres for the children of the elementary schools. Only when skilled assistance is available for every child in the country can we hope to have a nation with clean and healthy mouths.

I am, Sir, yours faithfully,

R. DENISON PEDLEY.

Railway Approach, London Bridge, S.E., Jan. 20th, 1919.

THE DREAMS OF THE TERROR-NEUROSIS.

To the Editor of THE LANCET.

SIR,—Dr. C. S. Myers (Lieutenant-Colonel, R.A.M.C. (T.C.)), in his article published in your issue of Jan. 11th, draws attention to the dreams of the terror-neurosis encountered in warfare. He raises certain points of interest, in particular as to how such dreams subside as the neurosis improves; whether there is any gradual intrusion into the incidents of warfare characteristic of the terror-dream by those of civil life.

In my experience there is rarely any such history. Patients who have suffered severely from terror-dreams during the earlier phases of their disability associate their improvement with the subsidence, not of the terrifying incidents only, but of dreaming altogether. In the majority of cases of the terror-neurosis patients in the period of cure cease to dream at all, and this is of interest in that it agrees with what the same patients so often say in reply to the questions as to the nature of their dreams before they broke down, before they were invalided, that is to say. For the most part they are consistent in saying that they did not dream at all, and certainly had had no frightening dreams.

There would appear, therefore, to be no period before the dysthymic somatic symptoms become obtrusive in which there are terrifying dreams; the somatic bodily symptoms precede the dream. At first sight this may seem to be curious; it might have been thought that when the conscious intelligence was in abeyance during sleep any emotional tone that was experienced in the waking state and was not allowed free play would make itself felt. The fact that this is not so in many cases may be associated perhaps with the intensity of the "blocking" to which it was subjected during the waking hours, the intensity being so great that it "overflows" into the sleeping state with a similar result, and is, of course, responsible for the terminal somatic symptoms of the neurosis. Once the somatic symptoms have made their appearance and the patient is in a position in which there is no further need for the emotion to be blocked, then fear does appear, and, in severe cases, not only in the dream but in the periods of wakefulness as well. Then we do see the effect of intelligent control, for as the case improves the fear leaves the patient during the day but persists during sleep when such control is in abeyance. In the course of time the control exerted during wakefulness overflows into the period of sleep and lessens the intensity of the dream. Possibly the powerful efforts made by the patient to control himself consciously operates in excess and stops dreaming altogether for a time.

We might almost go so far as to say that the patient who did experience fear in his dreams before the onset of somatic symptoms would not suffer severely when the neurosis was formed; the essential blocking of the emotion of fear in his case not being of any great intensity, not sufficiently intense

to overflow into his sleep and prevent the terror-dream, and therefore not sufficiently intense to bring about the neurosis in any degree of severity.—I am, Sir, yours faithfully,

Manchester, Jan. 14th, 1919. DONALD E. CORE.

ENCEPHALITIS LETHARGICA AND TYPHUS.

To the Editor of THE LANCET.

SIR,—I have been struck by the close clinical resemblance which encephalitis lethargica as described in your columns by Dr. A. S. McNalty and Lieutenant-Colonel A. J. Hall bears to typhus fever, a disease little familiar to the medical profession in England except in the pages of such a book as Vincent and Muratet in the "Military Medical Manual" Series. The onset, the rash, constipation, the nervous symptoms of both organic and hysterical nature, the stupor, the inability to protrude the tongue (Remlinger's sign in typhus, hypoglossal palsy mentioned by Dr. F. G. Crookshank), and tremors are some of the striking points these diseases have in common. Epistaxis, however, has not, so far as I know, been mentioned as occurring in lethargic encephalitis; the experience of most medical officers serving with the E.E.F. is that epistaxis is also rare in typhus, contrary to the usual teaching. I inquired recently about this point from an Egyptian medical officer who had seen over 1000 cases of typhus while serving with the Turkish Army; in no instance did he observe epistaxis.

On the pathological side the cause of both diseases is unknown, but an increase of the cellular content of the cerebro-spinal fluid has been found by Major C. R. Box in lethargic encephalitis, and by Devaux in typhus in Roumania, although it is to be noted that an excess of lymphocytes was described by the former, and of polynuclear leucocytes by the latter. Finally, the low mortality of lethargic encephalitis does not contradict this thesis, for typhus mortality is based on epidemics associated with starvation, bad hygienic surroundings, and lack of proper hospital accommodation; further, a mild form of typhus (*Typhus levissimus*) has been recognised abroad for some time.

I am, Sir, yours faithfully,

H. L. C. NOEL,
Captain, R.A.M.C.

—— Egyptian Hospital, E.E.F.

INVALIDISM FOR 15 YEARS THROUGH NASAL BLOCKAGE.

To the Editor of THE LANCET.

SIR,—In his article in THE LANCET of Dec. 14th, 1918, Dr. G. A. Sutherland writes that men with cardio-vascular debility "stand cold weather badly." Last winter I saw a B 3 man who told me he dreaded the cold weather. He always kept several pairs of boots going and wore very thick socks, and in them he placed felt soles. Damp boots and socks were a horror to him. He said he was an invalid and had a bad circulation. By chance my attention was drawn to his nose, and I found his septum was deflected to the left side. He refused an operation. I noticed his alæ nasi did not move, so I suggested he should practise nasal respiration. In a week the action had become automatic, and he told me with rapture he had passed from invalidism to strength. He found that he could wear the same pair of boots every day, and even do without socks. This latter was a great advantage, as it saved him darning socks! He told me he noticed that on a cold day the air passing into his now opened-up nostrils would send his blood shooting to the tips of his toes and fingers and acted like champagne on his mind. He said the cold weather he used to dread now acted as a tonic, and he revelled in it. The only alteration in his manner of life that brought this change about was nasal respiration, which kept his nasal passage on left side patent.

I am, Sir, yours faithfully,

Dec. 20th, 1918. CHAS. J. HILL AITKEN, M.D. Edin.

PHTHISIS IN FACTORY AND WORKSHOP.

To the Editor of THE LANCET.

SIR,—May I write a few words in answer to Sir G. Archdall Reid (THE LANCET, Dec. 28th, 1918)?

1. I consider tuberculosis a contagious disease produced by the *Bacillus tuberculosis*.

2. Even though practically everybody is exposed to the infection, only a relatively small number of human beings die from it—only predisposed people. Naegeli (500 cases of post-mortem examination) found that 97 per cent. of the patients dying in hospital (most of them living in towns) showed evidence that tubercular infection had at one time taken place.

3. Predisposition is either hereditary or acquired.

4. Amongst the most powerful causes of predisposition, hereditary or acquired, is alcoholism.

5. We know very well that civilisation brings alcohol in its train, and that many primitive races have disappeared because they have taken to drinking "fire water."

6. But we must add also that civilisation has brought new diseases to those populations—measles, tuberculosis, syphilis.

7. Dr. Ed. Bertholet has made the following observation. Up to 25 years of age practically all his cases of death from tuberculosis occurred amongst abstainers or very moderate drinkers; over 25 years practically all the cases were chronic alcoholics. I do not know whether his researches have been confirmed elsewhere.

8. In my letter of Dec. 6th (THE LANCET, Dec. 14th, 1918) I was trying to suggest a possible explanation of the great difference in mortality from tuberculosis between men and women under practically similar living conditions, the only difference between them being what Dr. W. C. Sullivan has called "industrial alcoholism" in the men.

I should be very glad to know if Sir G. Archdall Reid and Professor Benjamin Moore have other explanations or hypotheses to offer regarding these facts, my opinion being that women are certainly living, in their homes, under conditions more favourable to contracting tuberculosis, and to death from it, than their husbands.

I am, Sir, yours faithfully,

M. F. BOULENGER.

Darenth Industrial Colony, Dartford, Kent, Jan. 10th, 1919.

THE LEUCOCYTE COUNT IN INFLUENZA.

To the Editor of THE LANCET.

SIR,—I have seen a few references to the blood in influenza in papers published on the recent epidemic, and they all confirmed past experience. So far as they go my results do the same, but I made no total counts. Obviously this omission could not introduce abnormal cells into my films or take away from them normal forms which they did not contain. And in these respects alone has my experience been exceptional. Excluding moribund and mild cases, it is based on the examination of three moderately severe uncomplicated cases which made good recoveries, and on three cases with severe bronchitic or pneumonic complications which died after 6–10 days of illness.

Briefly, in seven examinations of the fatal cases I saw no eosinophile, and in the other cases these cells disappeared during the height of the disease. Again, in every one of the six cases plasma cells were seen on the fourth day or later. Usually 1 or 2 per cent. were present, but in one of the fatal cases there were 5 per cent. on the sixth day—four days before death. I have never seen anything approaching this in the adult, and it is no exaggeration to call it a phlogocytosis.

In pneumonia and typhoid the eosinopenia is well known. In whooping-cough I have seen 3 per cent. of plasma cells in children. But in a woman of 46, previously healthy, 5 per cent. in influenza seems worthy of record.

I am, Sir, yours faithfully,

Ealing, W., Jan. 19th, 1919. R. CRAIK, M.D. Glasg.

METRORRHAGIA IN INFLUENZA.

To the Editor of THE LANCET.

SIR,—The very complete and excellent account of the last influenza epidemic by Dr. Adolphe Abrahams, Dr. N. Hallows, and Dr. H. French in THE LANCET of Jan. 4th, seems to me to require one slight emendation from the clinical side, in which only I am able to criticise. It is said that in the hæmorrhages nothing abnormal was found from the uterus. If the authors will make a few further inquiries they will find that while epistaxis was common in males, it was rare in females, but these latter in a large proportion had menses coming on during the fever and before the proper time. It was at least so in this neighbourhood, and not alone in my experience. In two instances definite miscarriages

occurred. One pregnancy terminated three weeks before time on the second day of illness and the influenza ran an ordinary course afterwards of about a week, the mother nursing her baby all the time. One patient aborted at seven months about 12 hours after lung symptoms with cyanosis had appeared; the child was stillborn and the mother was dead about 16 hours afterwards, the third death from the septicæmia in that house and family. It seemed that epistaxis or metrorrhagia always denoted a bad or prolonged attack.

Another point was that a high temperature did not mean a severe attack; three cases had an ascertained temperature about the second or third day of 106° F. and they all came to normal in an average time and afterwards recovered quickly. They were all in girls and in families who kept clinical thermometers; probably there were others, for I am glad to say only a minority of my patients indulge in the luxury of thermometers.

I am, Sir, yours faithfully,

St. Ives, Huntingdon, Jan. 6th, 1919. W. R. GROVE.

WAR DEAFNESS.

To the Editor of THE LANCET.

SIR,—In the contribution of Dr. C. S. Myers to the study of shell shock in your issue of Jan. 11th there occurs the following statement:—

"Moreover, every physician of experience must have met with patients suffering from functional deafness whose sleep has not been in the least disturbed by the loudest noises."

May I venture to ask Dr. Myers whether he or any observer in whom he has confidence has recorded any number of such cases? So far as I am aware, many of us believe that functional deafness is extremely rare, and that it can only be diagnosed with certainty after recovery has taken place. For my part, were the question addressed to me, I should have to answer it with a decided negative.

I am, Sir, yours faithfully,

Jan. 17th, 1919. P. MCBRIDE.

THE "SPECTRUM" OF EPILEPSY.

To the Editor of THE LANCET.

SIR,—The weirdness of some of the fits of some of the men discharged from the Army as epileptic makes prominent in one's mind the ever-present question: Whether there is a boundary line between epilepsy and hysteria? To be always able to tell hysteria from epilepsy suggests inexperience; it is easier to the medical student than to the epileptologist. The student can quote a text-book. The fact may be that there is no dividing line. As we know nothing about epilepsy—though much about epileptics—and the physiology of the nervous system is still an infant, fanciful explanations are still permissible. We may fancy that there are three diseases: malingering, which is an affair of the consciousness, hysteria (rampant egoism of the subliminal self), which is an affair of the subconsciousness, and epilepsy, which is an affair of the unconsciousness. If that be so, there are no dividing lines between the three diseases. Epilepsy shades into hysteria and hysteria into shamming, as the colours shade into one another in the spectrum. It might tend to promote scientific treatment of convulsive diseases if the physician would make a spectrum-like chart of malingering, hysteria, and epilepsy, and attempt to plot on it the individual fits of his particular patient.

I am, Sir, yours faithfully,

ALAN MCDOUGALL,
Director of the David Lewis Epileptic Colony.

Sandle Bridge, Cheshire, Jan. 19th, 1919.

ISAAC DOBRÉE CHEPMELL.

To the Editor of THE LANCET.

SIR,—The death of Dr. I. D. Chepmell was briefly noted in THE LANCET of Jan. 4th. He was one of the oldest members of the profession, but having left London many years since his life is familiar only to a few. Born in Guernsey in 1828, the second son of Captain Charles Chepmell, he was at first educated at Elizabeth College, Guernsey, and later at King's College, London. In 1850 he took the L.S.A. and then travelled in France and Italy with Lord Holland. He became master of French and Italian, thus laying the foundation of his future professional success. In 1859 he married and settled in Paris, where he continued to practise till the Franco-German War. While in Paris, where he became physician to the Galignani Hospital, he had many distinguished Frenchmen as patients and was Foreign Correspondent to THE LANCET for many years. Settling in London in 1871, he practised there until his sight failed as the result of glaucoma. Here also he continued to advise many distinguished foreigners. The Empress Eugénie was his patient and friend. A skilful practitioner and a gracious personage, he had many warm attachments.

Chepmell was a keen and expert swordsman, and several of his London colleagues were induced by his example to take up fencing. Of his two sons one became a member of the medical profession, the other entered the Army, and three of his grandsons have fallen during the war.

I am, Sir, yours faithfully,

Devonshire-place, W., Jan. 20th, 1919. GEORGE H. SAVAGE.

AMŒBIC DYSENTERY CARRIERS: A CORRECTION.

To the Editor of THE LANCET.

SIR,—In my recent article on amœbic dysentery carriers among new entries to the Royal Navy (THE LANCET, Jan. 11th) I made the statement that *Lamblia* "is not known to be a normal parasite of the cat." This appears to have been erroneous. Neumann, in "Parasites et Maladies Parasitaires du Chien et du Chat" (Paris, 1914), mentions the cat among the list of hosts from which this parasite has been recorded.

I am, Sir, yours faithfully,

Jan. 20th, 1919. H. A. BAYLIS.

PLACE AUX EMBUSQUÉS?

To the Editor of THE LANCET.

SIR,—An open appointment as medical officer to the Corporation of Birmingham Pensioners' Hospital was advertised, preference being given to "senior men having recent hospital experience." A Lieutenant-Colonel, a Major, and three Captains, Royal Army Medical Corps, all with war service, were candidates. The appointment was given to a young recently qualified man who has never served his country. The undersigned gave up a good position in 1914 to do his bit. He has served continuously in four hospitals in Egypt and France since then, and was foolish enough to hope that such war experience would be taken into consideration in making the appointment.

Demobilisation of temporary Royal Army Medical Corps officers is imminent, and it is a great source of anxiety to many men whose practices are now derelict, how are they to provide for the future of those dependent upon them.

I am, Sir, yours faithfully,

A. W. COMBER, R.A.M.C.

THE SERVICES.

ROYAL ARMY MEDICAL CORPS.

Major R. G. Archibald, D.S.O., is placed on the half-pay list under the provisions of Article 307 (7), R.W. for Pay and Promotion.

Temporary Captains relinquishing the acting rank of Major on re-posting: J. H. Hood, A. M. Crawford, J. Greene, A. Manuel, W. H. D. Smith, R. C. Alexander.

Temp. Capt. G. G. Buchanan to be acting Major whilst specially employed.

Temporary Lieutenants to be temporary Captains: H. M. Berry, J. L. Schilling, T. A. Fall, A. Robin, R. H. Vercoe, H. M. Birkett, C. A. A. Lever, S. Johnson, L. W. Huelin, H. Gibson, C. Clyne, T. J. Cobbe, P. Savill, G. R. Jeffrey, W. B. Vaile, E. Gandy, E. O. Hughes, A. P. Hall, J. F. O'Mahony, G. B. Proctor, J. Mathewson, W. J. B. Lavery, C. E. Elliston, E. G. Bunbury, J. C. Duncanson, C. I. McLaren, C. Dean, E. M. Grace, G. C. M. Davis, E. R. Griffiths, G. A. Thompson, D. C. McCormick, C. G. Burton, R. N. Porter, B. A. I. Peters, F. J. Cairns, J. B. Taylor, I. L. MacInnes, V. J. A. Wilson, C. E. F. Salt, F. King, S. S. Rosebery, G. Young, W. H. A. Elliott, H. S. Dixon.

Temp. Hon. Lieut. H. A. Haskell to be temporary Honorary Captain.

Officers relinquishing their commissions: Temp. Col. O. Richards, C.M.G., D.S.O., A.M.S., and retains the rank of Colonel. Temp. Lieut.-Col. Sir J. W. Barrett, K.B.E., C.B., C.M.G., and retains the rank of Lieutenant-Colonel. Temp. Hon. Lieut.-Cols. H. A. Powell and G. Dreyer. Temp. Majors W. M. Robson and A. J. Cleveland and retain the rank of Major. The following retain the rank of Major: Temp. Capts. (acting Majors) F. B. Young, A. Richmond, H. H. Warren, W. S. Dickie, H. R. Grellett, W. M. Badenoch, R. S. Renton, J. L. Menzies, Temp. Capts. J. S. Bellas, J. B. McCabe, J. M. Glasse, A. R. Jackson, J. H. Hebb. To retain the rank of Captain: Temp. Capts. G. W. Ancrum, H. E. Brown, R. N. Porter, H. G. Rice, G. H. Rodolph, G. B. Moffatt, C. Y. Flewitt, J. Forrest, A. G. J. Thompson, H. W. B. Ruxton, A. D. Hamilton, H. Smurthwaite, S. H. Ryan, D. C. McArdle, A.

Dingwall, J. L. Johnston, J. T. Gunn, A. B. Laidlaw, W. W. Wood, J. A. H. White, A. Dixon, J. Ferguson, R. H. S. Torney, D. J. McAfee, W. B. Watson, T. A. Matthews, G. E. Oates, J. L. McCann, D. J. Foley, C. Watson, L. J. Weatherbe, W. Warburton, J. H. Morris-Jones, J. Fletcher, T. E. Flitcroft, S. McNair, F. W. Perry, A. H. Murch, W. H. Best, G. R. Phillips, J. A. V. Matthews, J. Reid, M. Golding, J. C. Wootton, R. W. Greatorex, A. S. Wilson, F. S. Adams, D. T. H. Croly, F. Barnes, T. Henderson, B. H. Worth, S. C. H. Bent, M. W. Baker, H. Walker, A. H. B. Hartford, T. N. Bride, G. Unsworth, D. Mann, H. P. Wright, R. E. Whitting, J. Morris, G. T. Bogle, A. F. Waterhouse, P. W. L. Camps, J. Steward, G. P. Young, M. S. Esler, V. Lloyd-Evans, A. Simpson, P. R. MacNaught, R. F. Bminson, A. G. Wilson, C. J. Nicholson, H. Tren, G. Graham, J. Clark, F. M. H. Sanderson, T. B. McKendrick, G. H. C. Lumsden, A. Manuel (acting Major), E. Wight, G. W. Thompson, J. Cameron, H. D. Haworth, W. B. Hendry, E. A. B. Poole, H. F. Warner, T. B. Johnston, K. Fraser, R. Appleton, D. J. McLeish, O. Smith, P. de S. Smith, R. C. Harkness (acting Major), J. C. Mead, R. O. Smyth, B. L. Hutchence, A. S. Bradley, W. H. Blakemore, J. T. Carson, S. S. Brook, W. P. Lowe, R. B. Johnston, G. H. Davy, W. C. Fowler, T. F. Murphy, H. E. Middlebrooke, J. Holland, C. Barnard, W. V. Naish, G. Stoddart, L. Bromley, H. Upcott, G. P. Humphry, G. W. Curtis, A. J. Hutton, A. J. McConnell, H. Widdas, A. Mason, E. J. Morton, R. Edridge, H. M. Joseph, F. W. Ritson, A. G. Henderson, D. A. Dewar, R. E. Walker, A. Ferguson, A. Bryans, A. H. Mountcastle, J. H. Trench, R. J. Bonis, D. A. Powell, E. F. R. Alford, J. V. Cope, G. C. Cossar, D. W. Daniels, G. B. Moffatt, H. S. Millar, H. R. Ramsbotham, C. A. R. Gatley, E. W. Milne, J. Wright, J. Proctor. Temp. Hon. Capts. R. A. Holmes and C. E. S. Jackson retain the hon. rank of Captain. Temporary Lieutenants retaining the rank of Lieutenant: W. Q. Wood, D. Robertson, J. Craig, R. Price, F. J. Power, C. E. Elliston, B. Hutcheson. Temporary Lieutenants: A. A. Hall, Temp. Hon. Lieut. H. A. Lownds. The undermentioned on transfer to R.A.F.: Temp. Major (acting Lieut.-Col.) J. L. Birley; Temp. Capt. (acting Major) J. H. Porter; Temp. Capts. J. H. Cooke, P. H. Young, W. S. T. Connell, L. W. Shelley, W. J. McKeand, C. W. W. James, A. G. H. Moore, F. A. Hampton, C. H. Thompson, C. K. Attlee, C. F. Graves, J. Chambre, W. Waugh, T. N. Wilthew, W. B. Dove, A. G. H. Smart, N. C. Graham, E. W. Craig, D. H. Fraser, G. Cranstoun, J. Freeman, W. H. Cam; Temp. Lieut. G. D. M. Beaton.

SPECIAL RESERVE OF OFFICERS.

Lieut. G. N. Groves to be Captain.

TERRITORIAL FORCE.

Major (acting Lieut.-Col.) J. Evans relinquishes his acting rank on ceasing to command a Field Ambulance.

Capt. (acting Major) H. Drummond relinquishes his commission on account of ill-health contracted on active service, and is granted the rank of Major.

Capt. A. E. Raine relinquishes his commission on account of ill-health contracted on active service, and retains the rank of Captain.

2nd Western General Hospital: Capt. C. P. Lapage reverts to the list of officers available on mobilisation and is restored to the establishment.

1st Eastern General Hospital: Major A. Cooke is restored to the establishment.

TERRITORIAL FORCE RESERVE.

To be Majors: Major (acting Lieut.-Col.) A. E. Hodder, from 3rd North Midland Field Ambulance; Major W. M. Mackay, from Attached to Units other than Medical Units; Major W. D. Milbanke, from Attached to Units other than Medical Units; Major A. B. Murray, from Attached to Units other than Medical Units; Major (acting Lieut.-Col.) A. Callam, from 2nd East Lancs. Field Ambulance; Major H. E. Corbin, from the General List.

To be Captains: Capts. R. D. Cran, F. Harvey, A. N. Crawford, John Livingston, G. Eustace, J. D. Lickley, N. G. H. Salmon, M. Wilks, O. Teichmann, from Attached to Units other than Medical Units; Capt. (acting Major) T. H. Peyton, from 1st Home Counties Field Ambulance; Capt. H. C. H. Bracey, from General List; Capt. A. J. Campbell, from South Wales Mounted Brigade Field Ambulance; Capt. J. Carroll, from 3rd Welsh Field Ambulance; Capt. C. R. Crowther, from 2nd Wessex Field Ambulance; Capt. A. C. C. Lawrence, from 2nd Northern Field Ambulance; Capt. (acting Major) G. Potts, from Attached to Units other than Medical Units; Capt. (acting Major) A. C. Watkin, from 2nd Home Counties Field Ambulance; Capt. (acting Major) S. McCausland, from 1st West Lancs Field Ambulance; Capt. J. Fenton, from Wessex Casualty Clearing Station; Capt. W. S. Forbes, from 1st London Casualty Clearing Station; Capt. W. W. J. Lawson, 3rd West Riding Field Ambulance; Capt. C. H. Lilley, from 2nd London Sanitary Company; Capt. A. V. Maybury, from 3rd Wessex Field Ambulance; Capt. C. G. Meade, from Yorkshire Mounted Brigade Field Ambulance; Capt. R. W. Nevin, from 1st Northampton Field Ambulance; Capt. (acting Major) W. Sneddon, from 3rd West Riding Field Ambulance; Capt. (acting Major) J. L. M. Symns, from 1st East Anglian Field Ambulance; Capt. (acting Major) R. M. Vick, from 3rd London Field Ambulance.

ROYAL AIR FORCE.

Medical Branch.—Major A. V. J. Richardson to be acting Lieutenant-Colonel whilst employed as Lieutenant-Colonel. L. S. Goss (Surgeon-Lieutenant, R.N.) is granted a temporary commission as Captain. Capt. J. A. Watson, Capt. H. Greenwood, Capt. E. J. Boyd (Surgeon, R.N.), Major-Gen. R. C. Munday, C.B. (retains the rank of Major-General), Capt. H. J. Shanley (Captain, R.A.M.C., T.F.), and Capt. J. A. Wilson relinquish their commissions on ceasing to be employed. Capt. A. E. McCulloch and Lieut.-Col. H. J. Hadden (Fleet Surgeon, R.N.) relinquish their commissions at their own request.

THE Swiney prize of the Royal Society of Arts has been awarded for the second time to Dr. Charles A. Mercier for a thesis on jurisprudence.

Dr. W. H. R. Rivers has been appointed Praelector in Natural Sciences at St. John's College, Cambridge, where he already holds a Fellowship.

The War and After.

THE CASUALTY LIST.

The names of the following medical officers appear among the casualties announced since our last issue :—

Died.

Surg.-Lieut.-Com. M. H. Langford, D.S.O., R.N., was a student at Middlesex Hospital and qualified in 1909. He joined the Royal Navy shortly afterwards.

Surg.-Lieut. M. Meehan, R.N., qualified in Ireland in 1912 and shortly afterwards joined the Royal Navy.

CASUALTIES AMONG THE SONS OF MEDICAL MEN.

The following additional casualty among the sons of medical men is reported :—

Lieut. J. Clarke-Morris, West Riding Regiment and R.A.F., accidentally killed whilst flying in France, youngest son of the late Dr. K. Clarke-Morris, of Blackheath, Kent.

THE HONOURS LIST.

The following awards to medical officers in recognition of their gallantry and devotion to duty in the field are announced :—

Bar to Distinguished Service Order.

Lieut.-Col. ANSON SCOTT DONALDSON, D.S.O., 3rd Fd. Amb. Can. A.M.C.—For conspicuous gallantry and devotion to duty. This officer was in charge of the evacuation of the forward area, and showed great initiative in establishing dressing stations and collecting posts directly in rear of the advancing infantry. He kept in touch with the battalion and succeeded in evacuating the casualties almost as soon as they occurred, in spite of heavy machine-gun and shell fire.

Lieut.-Col. THOMAS JOSEPH FRANCIS MURPHY, D.S.O., 6th Fd. Amb., Can. A.M.C.—During an attack there were several wounded cases whose evacuation was being held up by the intense enemy barrage. This officer then brought up two motor ambulances, which he left some distance in rear, and came up with his runner to the village and searched for the regimental aid-post, which he found after much difficulty, all the time exposed to heavy fire himself, as he passed several times through the enemy barrage and machine-gun fire. It was through his utter disregard of personal danger that the wounded were safely cleared and many lives saved.

Distinguished Service Order.

Major JOHN CHARLES CAMPBELL, 7th Fd. Amb., Austr. A.M.C.—For conspicuous gallantry and devotion to duty. This officer was in charge of stretcher-bearers, evacuating all wounded from the right sector of the advance throughout five days' fighting. He kept close behind the infantry and kept in touch with the various medical officers under constant heavy fire. One night a direct hit completely demolished his aid-post, but he got his men to a place of safety and continued the evacuation of the wounded. He superintended the work for five days continuouly with great courage and persistence, setting a fine example to all under him.

Capt. (acting Lieut.-Col.) THOMAS HENRY SCOTT, M.C., 14th Fd. Amb.—For conspicuous gallantry and devotion to duty. When the vicinity of his advanced dressing station was being heavily shelled, it was due to his coolness and able management that a number of stretcher and walking cases were evacuated quickly and smoothly. His foresight and organisation were mainly responsible for the very large numbers of officers and men successfully evacuated during this period under most difficult conditions.

Capt. (temp. Major) WILLIAM DUNCAN STURROCK.—For conspicuous gallantry and devotion to duty, when the main surgical ward and operating tent of a field ambulance were wrecked by shell fire, one officer and two other ranks being wounded. He very quickly put matters right, and, owing to the excellent arrangements made by him throughout the operations, the wounded, in spite of difficult country and lack of roads, were very rapidly collected and evacuated.

Major (acting Lieut.-Col.) GEORGE GRANT TABUTEAU, No. 1 Fd. Amb.—For conspicuous gallantry and devotion to duty in supervising the evacuation of casualties during three days' operations under heavy shell fire. He maintained a chain of medical posts in close touch with the battalions of his brigade, and the rapid removal of the wounded was due to his coolness and untiring energy, which inspired his officers and men with confidence.

Second Bar to Military Cross.

Temp. Capt. (acting Major) JOHN SAMUEL LEVIS, M.C., 51st Fd. Amb.—For conspicuous gallantry and devotion to duty. During an attack, when the regimental aid-posts were under direct enemy observation, this officer, approaching them over ground swept by machine-gun fire, made arrangements for the wounded to be evacuated by a safer route. He was indefatigable in the day in keeping touch with the aid-posts as they moved forward, and during the night took stretcher-bearers up to the front line to search for wounded.

Capt. (acting Major) CAMPBELL McNEIL McCORMACK, M.C., 15th Fd. Amb.—For conspicuous gallantry and devotion to duty. During various attacks this officer supervised the collecting of wounded over a large part of the divisional front. He closely followed the advancing troops with his stretcher-bearers, evacuating the wounded skilfully and speedily. On one occasion during a retirement he personally, under heavy fire, reconnoitred the ground where the wounded lay, and by his disp sitions of the stretcher-bearers undoubtedly saved their lives and the lives of many of the wounded.

Temp. Capt. CHARLES GORDON TIMMS, M.C., attd. 7th Bn., R. Fus.—For conspicuous gallantry and devotion to duty. During a counter-attack this officer went forward from battalion headquarters and effected several rescues of seriously wounded men, conducting them personally to the lines. Throughout the week's fighting he worked night and day, and the manner in which he disposed of stretcher cases under heavy fire was admirable.

Bar to Military Cross.

Capt. WILLIAM JAMES DOWLING, M.C., attd. 3rd Bn., M.G. Corps, T. attd. 142nd Fd. Amb.—He was in charge of stretcher-bearers during very heavy fighting lasting for two days, and repeatedly went forward to satisfy himself that the R.A.P. were being kept clear. On many occasions he himself led forward stretcher squads under very heavy fire. He invariably displayed great gallantry, and afforded a magnificent example to all ranks working under him.

Capt. (acting Major) JOHN CECIL ALEXANDER DOWSE, M.C., attd. H.Q., 63rd Div.—For conspicuous gallantry and devotion to duty. This officer controlled the evacuation of wounded from the whole of the divisional front under artillery, machine-gun, and rifle fire, and their rapid and efficient evacuation was due to his untiring zeal and energy in maintaining constant communications between battalions and field ambulances. He set a splendid example to all ranks.

Capt. HUGH HART, M.C., No. 5 Fd. Amb., Can. A.M.C.—During an action this officer was in charge of the field ambulance stretcher-bearers. His work under very heavy machine-gun and shell fire was characterised by thoroughness and a clear and concise idea of the situation at all times which was due to his keeping in close touch with the rapidly advancing infantry. On this and other occasions he cleared all casualties with exceptional rapidity. His courage and tireless persistence were a source of inspiration to all under him.

Lieut. WILLIAM PEAT HOGG, M.C., I.M.S.—For conspicuous gallantry and devotion to duty. When his aid-post was heavily shelled he collected all his casualties with great coolness and promptitude, and conducted them to a new post. He has previously done similar fine work in action.

Capt. JOSEPH REGIS ALBERIC MARIN, M.C., Can. A.M.C., attd. 22nd Bt., Can. Inf., Quebec R.—During three days' hard fighting he was indefatigable in his attention to the wounded, working often under heavy fire. He saved many lives by his skill and devotion to duty. When all the officers had become casualties, and he himself was wounded, he remained at duty and continued his good work. Later on he was severely gassed and had to be evacuated. The example of his self-sacrificing and gallant conduct had a great effect on the whole battalion.

Temp. Surg. FRANK PEARCE POCOCK, D.S.O., M.C., R.N., attd. Drake Bn., R.N.V.R.—He attended to the wounded under very heavy fire and most adverse circumstances during operations lasting several days. His courage and self-sacrificing devotion to duty were a splendid example to his stretcher-bearers, and his skill was instrumental in saving the lives of many wounded men.

Temp. Capt. (acting Major) MAURICE ALOYSIUS POWER, M.C., attd. 148th Fd. Amb.—For conspicuous gallantry and devotion to duty. Whilst in charge of stretcher bearers he attended to and collected wounded under heavy machine-gun fire. He worked unceasingly directing stretcher-bearers, and evacuated several hundred wounded from the R.A.P.'s in his sector. Although wounded (for the third time) he remained on duty and showed great endurance, as on previous occasions.

Capt. (acting Major) CUTHBERT SCALES, M.C., attd. 150th Fd. Amb.—For conspicuous gallantry and devotion to duty when in charge of stretcher-bearers. He exposed himself continually, moving from place to place to collect the wounded under heavy machine-gun and rifle fire. Thanks to the close touch he kept with the battalions, several hundred wounded were quickly collected and evacuated.

Capt. (acting Major) HERBERT WILLIAM WADGE, M.C., No. 10 Fd. Amb., Can. A.M.C.—This officer was in charge of the stretcher-bearers of the ambulance during five days' fighting. He worked continuously, directing the evacuation of the wounded in the forward area. Under his leadership the bearers worked strenuously, and the wounded were evacuated with great rapidity. Although considerably shaken by the explosion of a shell, he continued his work.

Capt. THOMAS WALKER, M.C., attd. 2/3rd Lond. Fd. Amb.—For conspicuous gallantry and devotion to duty. He took a motor ambulance car to an advanced regimental aid-post under very heavy shell fire and evacuated the wounded. Throughout the whole action he displayed great skill and disregard of danger in handling his bearers, and was night and day in the line, keeping touch with the regiments, under heavy shell fire.

Temp. Capt. PHILIP HEWER WELLS, M.C., attd. 2nd Bn., C. Gds.—When moving up to an aid-post with the battalion headquarters a shell fell on the party, causing many casualties, including the only other officer. Capt. Wells, showing complete disregard for personal safety, organised the party and attended to the wounded. Throughout the day he ceaselessly carried on his duties, and under most trying conditions, being exposed to heavy shell-fire the whole time. In spite of the number of wounded he managed to attend to all and arrange for their evacuation.

The Military Cross.

Capt. SIDNEY GEORGE BALDWIN, No. 9 Fd. Amb., Can. A.M.C.—For conspicuous gallantry and devotion to duty. Under his direction the wounded were dressed and removed from the battle-field without any delay. He often led his bearers through machine-gun fire to reach wounded men, whom he successfully evacuated. All through the fighting he displayed great disregard of danger.

Lieut. BAWA HARKISHAN SINGH, I.M.S.—For conspicuous gallantry and devotion to duty and coolness under fire when in charge of the dressing station of the ambulance. The dressing station came under heavy fire at night and the situation was critical for a time. He, however, collected the wounded and brought them in. He also showed great coolness and initiative when the ambulance was bombed by aeroplanes during and after the attack.

Temp. Surg. DAVID LEISHMAN BAXTER, R.N., attd. 1st Bn., R. Marines.—For conspicuous gallantry and devotion to duty during an attack. He early established an aid-post well forward, and continued to move forward with the advance, showing utter disregard of personal danger when searching for wounded and having them dressed under heavy fire. He caused all wounded to be rapidly evacuated, and throughout set a very fine example to his staff.

Capt. NEIL DOUGLAS BLACK, Can. A.M.C., attd. 25th Bn., Can. Inf., Nova Scotia R.—For conspicuous gallantry and devotion to duty. With absolute indifference to the heavy shell fire this officer advanced with the leading companies and attended to the wounded. The second afternoon of the attack he advanced beyond the line under intense enemy machine-gun fire and dressed the wounded of other battalions. His coolness and example were a source of inspiration to officers and men.

Capt. TILLMAN ALFRED BRIGGS, Can. A.M.C., attd 116th Bn., Can. Infy., 2nd C. Ont. R.—During an attack he rendered invaluable assistance to the wounded of this and other battalions. He attended to a number of casualties in the jumping-off position in spite of heavy machine-gun and artillery barrage. Most of his dressers became casualties, but he continued to dress the wounded. As soon as he had attended to those he pushed forward across the open and assisted those who had fallen. His services were most valuable, and his work of a very high order. He displayed remarkable coolness and energy under fire.

Capt. HERMAN MACLEAN CAMERON, No. 3 Fd. Amb., Can. A.M.C.—For conspicuous gallantry and devotion to duty. This officer performed valuable work in establishing a new A.D.S. to conform with the advancing line, under heavy machine-gun fire and artillery barrage, working continuously for 24 hours without rest.

Temp. Capt. FREDERICK ORLANDO CLARKE, attd. 149th Fd. Amb.—For conspicuous gallantry and devotion to duty in attending to and evacuating the wounded from the forward area under heavy rifle and machine-gun fire. He worked on until every case had been evacuated, and set a splendid example of zeal and endurance to all ranks under him.

Temp Capt. ANDREW LESLIE EDMUND FILMER COLEMAN, attd. 2nd Bn., S. Gds.—For conspicuous gallantry, tireless energy and devotion in tending the wounded during operations. For two days and nights he never left his post, though ubjected to continuous machine-gun fire and frequent bombardments of high explosives and gas. During this period a continuous stream of wounded poured in, both from his own and other units, and by his prompt attention and ceaseless hard work he undoubtedly saved the lives of many severely wounded cases.

Capt. (acting Major) FRANK COLEMAN, 6th Lond. Fd. Amb.—He displayed conspicuous gallantry and devotion to duty at an advanced dressing station which was frequently under heavy shell fire and night bombing. He attended to and arranged for the evacuation of a very large number of wounded, and his skill and able organisation were the means of saving several lives.

Temp. Capt. PURSER DAVIES, att. 6th (London) Fd. Amb.—He worked with little or no rest for 60 hours in the open under heavy fire, dressing and evacuating the wounded. His conspicuous example of gallantry and self-sacrificing devotion to duty were an inspiration to the stretcher-bearers, whose services he organised with great ability. He saved many lives by his skill.

Temp. Capt. TREVOR G. FEATHERSTONHAUGH.—For conspicuous gallantry and devotion to duty in attending to the wounded and withdrawing them to cover. In doing so he had constantly to move across ground exposed to fire. It was due to his ability and coolness that casualties were evacuated so expeditiously, thus preventing any hampering of the critical operation in progress at the time.

Temp. Capt. JOHN FINNEGAN, attd. 7th Bn., Lincolnshire R.—For conspicuous gallantry and devotion to duty. At one time, when the battalion was held up lining a bank, he continued to move up and down what was actually the front line, under enfilade fire, attending to and evacuating wounded of his own battalion and also of other divisions. By his disregard of danger for himself he saved numerous lives of others.

Capt. DAVID DAWSON FREEZE, Can. A.M.C., attd. R. Can. R.—In an attack he displayed great courage in dressing wounded under heavy shell and machine-gun fire. He followed close up with the battalion in the attack and, in the most exposed position, he continued to dress the wounded and organise carrying parties, so that all the battalion casualties were evacuated in very short time. After the objective had been reached he proceeded in advance under heavy machine-gun fire, and dressed the wounds of a large number of the enemy and evacuated them. Learning that a number of men of another division were lying in front of our line, having been wounded two days previously, he proceeded under heavy fire, dressed their wounds and supervised their evacuation. His devotion to duty throughout was admirable.

Temp. Capt. DOUGLAS HUGH AIRD GALBRAITH—For conspicuous gallantry and devotion to duty. He was wounded in the head whilst attending to a wounded officer, and, though in great pain, continued to carry out his duties for the remainder of the day with zeal and determination.

Capt. ARTHUR HINES, Can. A.M.C., attd. 26th Bn., N. Brunswick R.—For conspicuous gallantry and devotion to duty during an attack. He went forward with the attacking waves, and on numerous occasions, in the open and in face of the heaviest shell and machine-gun fire, dressed the wounded. His utter disregard of danger was a constant source of inspiration to all ranks.

Temp. Capt. EDWIN LANCELOT HOPKINS.—For conspicuous gallantry and devotion to duty in dressing wounded under fire during a reconnaissance. He has on all occasions displayed great coolness and resource in carrying out his work.

Capt. JAMES STEWART HUDSON, Can. A.M.C., attd. 1st Bn., Can. Mtd. Rif.—For conspicuous gallantry and devotion to duty during operations. He attended to the wounded under exceptionally heavy shell and machine-gun fire. He personally superintended the collection of wounded, and organised stretcher parties. His coolness and courageous conduct set a high example to all.

Capt. ROY BERTRAM JENKINS, Can. A.M.C., attd. 24th Bn., Can. Infy., Quebec R.—For conspicuous gallantry and devotion to duty. During two days' fighting this officer accompanied the troops, and was tireless in attending to the wounded under heavy shell, gas, and machine-gun fire. As soon as the battalion had made good its line he established a rear aid-post close up, where he received and evacuated wounded. Being exposed to fire himself, he arranged what cover was possible for the wounded and continued at work until he was sure that all had been cleared. He worked unceasingly, never thinking of himself.

Capt. ALEXANDER JOHNSTONE.—For conspicuous gallantry and devotion to duty. He displayed the utmost energy and coolness in collecting, dressing, and evacuating the wounded under heavy fire. Through his untiring efforts 200 cases were disposed of in a very short time.

Temp. Capt. JAMES GAYMER JONES.—For conspicuous gallantry and devotion to duty. Although exposed to heavy and continuous shell fire throughout the day, he continued to dress the wounded in the gun line, thereby alleviating much suffering and saving many lives. His courage on all occasions has been most marked.

Temp. Lieut. RATENSHAW NARIMAN KAPADIA, I.M.S.—For conspicuous gallantry and devotion to duty. Exposed to heavy fire, he continued throughout the action to collect and dress the wounded, who were much scattered, thereby saving many lives.

Temp. Surg. CHARLES EDWARD LEAKE, R.N., attd. Hawke Bn., R.N.D., R.N.V.R.—He was with the battalion during six days' incessant fighting, and displayed untiring devotion to duty, dressing the wounded under constant fire. His gallantry and coolness were a splendid example, and inspired the stretcher-bearers under his command to great efforts to evacuate all the wounded, which was accomplished with admirable care.

Temp. Lieut. DOUGLAS BURROWES LEITCH, attd. 13th Bn., Welsh R.—For conspicuous gallantry and devotion to duty. When his battalion came under heavy shell and machine-gun fire he went forward and rendered first aid to men lying in the open and removed them to cover, being shot at by snipers and machine guns while doing so. His zeal and disregard of danger throughout the operations were splendid. Finally he was severely wounded.

Temp. Capt. JOSEPH PATRICK McGREEHIN, attd. 4th Bn., R. Fus.—While proceeding to assembly positions he was knocked over by a large piece of shell and badly shaken. Nevertheless he pushed on and established his O.P. behind a bank. Unfortunately, unknown to him, it was in the vicinity of a water point, and was very accurately shelled all day and finally hit. In spite of this, he worked on with the greatest courage, dressing with care all the wounded, and in one case amputating a foot.

Capt. ROBERT DEWAR MacKENZIE, Can. A.M.C., attd. 15th Bn., Can. Infy., 1st C., Ontario R.—For conspicuous gallantry and devotion to duty. He dressed wounded under continuous shell fire, and kept moving his dressing station forward, so as to be able to attend to the more serious cases. He cleared the cases with the utmost dispatch, and many times during the day went up, under shell and machine-gun fire, to dress stretcher cases. His conduct throughout was deserving of high praise.

Capt. DONALD CAMPBELL MALCOLM, 8th Fd. Amb., Can. A.M.C.—He was in charge of the bearer division in the left sector during the fighting. He showed great initiative and judgment at all times, keeping in close touch with the advancing troops and clearing the wounded. He worked continuously for 48 hours searching for and attending the wounded in the open. On one occasion when the advance was delayed near a wood he led his stretcher squads across the open ground which was being swept by machine-gun fire and brought many wounded back to safety. He displayed the greatest coolness under fire and a perfect disregard for personal safety during the entire action.

Capt. JOSEPH REGIS ALBERIC MARIN, Can. A.M.C., attd. 22nd Bn., Quebec R.—For conspicuous gallantry and devotion to duty during an attack. He, through his promot dressing of wounds under heavy shell and machine-gun fire, alleviated the sufferings of many wounded and saved the lives of some of the more seriously wounded. His fearless example had the best possible effect on the moral of the men. He worked with determination and cheerfulness for two days under very trying and dangerous conditions.

Temp. Capt. WILLIAM MILLERICK, attd. 10th Bn., A. & S. Highrs.—For conspicuous gallantry and devotion to duty. Hearing that there were a number of severely wounded cases in a village, which could not be moved until properly dressed, this officer at once went forward, and carried out his duties under heavy fire of every description. He continued his work untiringly throughout the day, and by his skilful organisation of dressing and carrying parties was undoubtedly responsible for saving many lives.

Temp. Capt. FREDERICK HAROLD MORAN, attd. 15th Bde., R.F.A.—For conspicuous gallantry and devotion to duty during an advance. Throughout the operations he maintained his aid-post practically at the battery positions, and dressed wounded of many units under heavy shell fire. He more than once passed through heavy barrage to get at and attend to wounded. His zeal and disregard of personal safety were splendid.

Temp. Capt. (acting Major) DUNCAN METCALFE MORISON, 38th Fd. Amb.—When the infantry were ordered to attack at short notice he went forward through a heavy barrage and completed the necessary arrangements with the medical officer of the battalion for the evacuation of the wounded. His gallantry and devotion to duty ensured the wounded being rapidly cleared and many lives were saved thereby.

Capt. DUNCAN ARNOLD MORRISON, 1st Fd. Amb., Can. A.M.C.—For conspicuous gallantry and devotion to duty. He accompanied the advancing infantry to the final objective, and though wounded himself remained on duty, continuing to do excellent work during two days' operations, establishing an A.D.S. as soon as the infantry passed through. He behaved splendidly.

Capt. ROBERT DAVIES MOYLE, 2nd Fd. Amb., Can. A.M.C.—For conspicuous courage and devotion to duty. He followed the infantry into the open while it was still under machine-gun fire. Owing to the condition of the ground it was impossible to get transport up, but he organised bearer parties, collected all wounded into a place of safety, and succeeded in securing dressings, food, and water for them, saving many lives. He set an example to all ranks under him.

Lieut. (temp. Capt.) WILLIAM DOUGLAS NEWLAND, 92nd Fd. Amb.—Under conditions of open warfare he collected a number of wounded for evacuation. The place came under very heavy shell fire, due to a number of Tanks passing close to his post. With great courage and devotion he remained with the wounded until he was able to clear them all, although the fire was so heavy that all troops had to leave the immediate neighbourhood.

Capt. FREDERICK McGREGOR PETRIE, Can. A.M.C., attd. 31st Bn., Alberta R.—This officer displayed great courage, coolness, and devotion to duty under heavy fire and in most trying conditions. He showed great executive ability in the evacuation of wounded, and, although the casualties were very heavy, at no time was there any congestion at the R.A.P. By his skilful organisation and untiring energy many wounded were evacuated during the operation.

Temp. Lieut. GEORGE FITZPATRICK RIGDEN, attd. 16th Bn. Lan. Fus.—He established a first-aid post well forward, and in spite of heavy machine-gun fire carried on his duties with admirable self-possession, several times going forward in face of intense fire to dress wounded lying in exposed positions. It was largely due to his unselfish devotion that some of the most serious cases received prompt attention. His courage throughout was most marked. Finally he was wounded.

Capt. LEWIS WILSON SHELLY, attd. No. 1 Aeroplane Supp. Depôt, R.N.—For conspicuous gallantry and devotion to duty. When this depôt was heavily bombed in a night raid he organised a dressing station at the Repair Park, attending the wounded in the open. Several bombs fell close to him, wounding those around him, but he stuck to his work and saved the lives of many by his coolness and courage.

Capt. CHARLES GORDON STRACHAN.—For conspicuous gallantry and devotion to duty in charge of stretcher-bearers. He worked for 24 consecutive hours across open ground which was constantly shelled. He rallied his bearers when somewhat exhausted and disorganised by heavy fire, and set them a very fine example of cheerfulness and complete disregard of personal danger. The successful evacuation of all wounded was largely due to his personal conduct.

Capt. ROY HINDLEY THOMAS, 1st Fd. Amb., Can. A.M.C.—For superintending the evacuation of wounded when he went over the entire area, still under heavy fire, locating the wounded, and after dark succeeding in safely removing them all. His untiring devotion to duty, initiative in establishing collecting-posts, and organisation of carrying parties undoubtedly saved many lives.

BROUGHT TO NOTICE.

The names of the following medical officers, all of the R.A.M.C., have been brought to the notice of the Secretary of State for War for devotion to duty and valuable services rendered by them when prisoners of war, during epidemics of cholera and typhus fever, at the Prisoners of War Camp at Wittenberg, Germany:—

Capt. S. Field (since deceased); Maj. W. B. Fry (since deceased); Lt. (temp. Capt., acting Major) J. La F. Lauder, D.S.O., M.C.; Maj. H. E. Priestley, C.M.G.; Capt. A. A. Sutcliffe (since deceased); Maj. A. C. Vidal, D.S.O.

Also the following for valuable and distinguished services rendered in connexion with the operations in North Russia:—

Lt. F. Evans, R.A.M.C. (T.F.); Lt.-Col. T. McDermott, R.A.M.C.

FOREIGN DECORATIONS.

French.

Croix de Guerre.—Col. G. W. Barber, C.M.G., D.S.O., Austr. A.M.C.; Maj. H. d'A. Blumberg, R.A.M.C. (T.F.); Bt.-Maj. L. G. Bourdillon, D.S.O., M.C., R.A.M.C.; Capt. E. J. Dickinson, M.C., Can. A.M.C.; Temp. Capt. (acting Maj.) D. McKelvey, M.C., R.A.M.C.; Capt. G. W. Rogers, M.C., R.A.M.C. (T.F.); Temp. Capt. (acting Maj.) H. B. G. Russell, R.A.M.C.; Capt. (acting Lt.-Col.) G. P. Taylor, D.S.O., M.C., R.A.M.C.; Capt. (acting Maj.) A. P. Thomson, M.C., R.A.M.C. (T.F.); Maj. F. L. Wall, M.C., Austr. A.M.C.

Croix de Guerre, avec Palme.—Col. R. J. Blackham, C.M.G., C.I.E., D.S.O., A.M.S.

Sir Nestor Tirard has returned to 74, Harley-street, W.1, on his retirement from the command of the Fourth London General Hospital, Denmark-hill.

THE IRISH DISPENSARY DOCTORS' AGITATION.—The fight between the boards of guardians and their dispensary medical officers has taken an entire change owing to a resolution, passed unanimously by the Cookstown (Co. Tyrone) board of guardians on Jan. 11th, condemning the present dispensary system as being unsatisfactory both to the ratepayers and to the poor, and stating that the time had arrived when the poor man should have choice of a doctor for himself and his family. The idea underlying this motion (a copy of which it was decided to send to the Tyrone M.P.'s, to the Irish Chief Secretary, and to each Poor-law board in Ireland) is that the dispensary "lines" should be made available to any medical practitioner who was willing to accept them, and who would be paid at each quarter for the number of the "lines" that had been presented to him. It will be interesting to note what other boards of guardians will do in the matter. At the Coleraine board of guardians on Jan. 18th letters were read from all the dispensary doctors in that union, returning the increase of salary for the quarter, on the ground that the scale fixed by the guardians was wholly inadequate to meet the requirements of the doctors. It was moved and seconded by two of the guardians to take no further action in the matter, but saner advice was followed, and an amendment was carried (14 to 8) to consider the question at a special meeting, the proposer of the amendment saying that the scale that they had adopted was inadequate, and that the doctors should be paid a decent salary. So the question rests for the present.

URBAN VITAL STATISTICS.

(Week ended Jan. 18th, 1919.)

English and Welsh Towns.—In the 96 English and Welsh towns, with an aggregate civil population estimated at 16,500 000 persons, the annual rate of mortality was 15·5, against 16·1 and 16·0 per 1·00 in the two preceding weeks. In London, with a population slightly exceeding 4,000,000 persons, the annual death-rate was 14·8, or 1·0 per 1000 below that recorded in the previous week; among the remaining towns the rates ranged from 3·8 in Gl ue ster, 4·5 in Smethwick, and 5·9 in Gillingham, to 23·5 in West Hartlepool, 26·0 in Liverpool, and 26·5 in Bootle. The principal epidemic diseases caused 161 deaths, which corresponded to an annual rate of 0·5 per 1·00, and included 60 from diphtheria, 49 from infantile diarrhœa, 24 from whooping-cough, 15 from scarlet fever, 8 from measles, and 5 from enteric fever. The deaths from influ nza, which had steadily declined from 755 to 3·0 in the ten preceding weeks, further fell to 274, and included 43 in London, 35 in Liverpool, 18 in Manchester, and 12 in Sheffield. There were 5 cases of small-pox 1092 of scarlet fever, and 1145 of diphtheria under treatment in the Metropolitan Asylums Board Hospitals and the London Fever Hospital, against 5, 1058, and 1139 respectively at the end of the previous week. The causes of 54 deaths in the 96 towns were uncertified, of which 10 were registered in Birmingham, 9 in Liverpool, 5 in Gateshead, and 4 in Manchester.

Scotch Towns.—In the 16 largest Scotch towns, with an aggregate population estimated at nearly 2,500,000 persons, the annual rate of mortality was 17·0, against rates increasing from 14·8 to 18·6 per 1000 in the four preceding weeks. The 319 deaths in Glasgow corresponded to an annual rate of 14·9 per 1000, and included 6 from whooping-cough, 4 from diphtheria, 2 from infantile diarrhœa, and 1 from scarlet fever. The 135 deaths in Edinburgh were equal to a rate of 21·1 per 1000, and included 8 from whooping-cough and 4 from diphtheria.

Irish Towns.—The 172 deaths in Dublin corresponded to an annual rate of 22·1, or 0·9 per 1000 above that recorded in the previous week, and included 3 from infantile diarrhœa and 1 from measles. The 121 deaths in Belfast were equal to an annual rate of 15·7 per 1000, and included 5 from infantile diarrhœa and 1 from measles.

VITAL STATISTICS OF LONDON DURING DECEMBER, 1918.

In the accompanying table will be found summarised statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious disease it appears that the number of persons reported to be suffering from one or the other of the ten diseases specified in the table was equal to an annual rate of 4·2 per 1000 of the population, estimated at 4,026.901 persons; in the three preceding months the rates had been 4·7, 5·9, and 4·0 per 1000. Among the metropolitan boroughs the lowest rates from these notified diseases were recorded in Chelsea, the City of Westminster, St. Marylebone, Hampstead, Finsbury, and the City of London; and the highest in Fulham, Hackney, Bethnal Green, Stepney, Southwark, and Bermondsey. One case of small-pox was notified during the month; this case belonged to Holborn. The prevalence of scarlet fever was slightly less than in the preceding month; this disease was proportionately most prevalent in Fulham, Bethnal Green, Stepney, Poplar, Southwark, and Lambeth. The Metropolitan Asylums Hospitals contained 1087 scarlet fever patients at the end of the month, against 931, 1184, and 1107 at the end of the three preceding months; the weekly admissions averaged 138, against 164, 178, and 146 in the three preceding months. The prevalence of diphtheria was about 10 per cent. higher than in November; the greatest prevalence of this disease was recorded in St. Pancras, Hackney, Bethnal Green, Southwark, Bermondsey, and Camberwell. The number of diphtheria patients under treatment in the Metropolitan Asylums Hospitals, which had been 1051, 1155, and 1·00 at the end of the three preceding months, numbered 1089 at the end of December; the weekly admissions averaged 146, against 166, 169, and 129 in the three preceding months. The prevalence of enteric fever was about equal to that in the previous month; of the 15 cases notified 3 belonged to Kensington, 2 to Hampstead, and 2 to Lambeth. There were 23 cases of enteric fever under treatment in the Metropolitan Asylums Hospitals at the end of the month, against 43, 56, and 33 at the end of the three preceding months; the weekly admissions averaged 1, against 6, 9, and 3 in the three preceding months. Erysipelas was proportionately most prevalent in Chelsea, St. Pancras, Stepney, Southwark, Camberwell, and Deptford. One case of puerperal fever was notified during the month from each of the boroughs of St. Pancras, Islington, Shoreditch, Battersea, and Wandsworth. Of the 7 cases of cerebro-spinal meningitis 2 belonged to Hammersmith, and 1 each to Paddington, Lambeth, Battersea, Deptford and Greenwich; while 1 case of of poliomyelitis belonged to Holborn and 1 to Poplar.

The mortality statistics in the table relate to the deaths of civilians belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased had previously resided. During the four weeks ended Dec. 28th the deaths of 5717 London residents were registered, equal to an annual rate of 18·5 per 1000; in the three preceding months the rates had been 11·4, 27·3, and 42·3 per 1000. The death-rates ranged from 10·0 in Lewisham, 11·7 in Woolwich, 13·6 in Hampstead, 15·0 in Finsbury, 15·2 in Wandsworth, 16·2 in Hackney, and 16·3 in Greenwich, to 22·0 in Kensington, 22·1 in St. Marylebone, 23·3 in Holborn, 23·8 in the City of Westminster, 25·8 in Southwark, and 26·7 in the City of London. The 57·7 deaths from all causes included 124 which were referred to the principal infectious diseases; of these, 13 resulted from measles, 9 from scarlet fever, 36 from diphtheria, 7 from whooping-cough, 5 from enteric fever, and 54 from diarrhœa and enteritis among children under 2 years of age. No death from any of these diseases was recorded during the month in Finsbury, and in the City of London. Among the metropolitan boroughs the lowest death rates from these diseases were recorded in Hammersmith, the City of Westminster, Shoreditch, Greenwich, and Woolwich; and the highest death-rates in Paddington, Holborn, and Southwark. The 13 deaths from measles were 85 below the average number in the corresponding period of the five preceding years, and included 2 in Islington and 2 in Woolwich. The 9 fatal cases of scarlet fever showed a decline of 9 from the average number; 2 of these belonged to Hampstead. The 36 deaths attributed to diphtheria were 28 below the average, and included 6 in Southwark and 3 each in Paddington, St. Pancras, Islington, Hackney, and Bermondsey.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING DECEMBER, 1918.

(*Specially compiled for* THE LANCET.)

CITIES AND BOROUGHS.	Estimated civil population, 1917.	Notified Cases of Infectious Disease.											Deaths from Principal Infectious Diseases.								
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Poliomyelitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Enteric fever.	Diarrhœa and enteritis (under 2 years).	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.
LONDON	**4,026,901**	**1**	**559**	**558**	**—**	**15**	**—**	**5**	**150**	**7**	**2**	**1297**	**4·2**	**—**	**13**	**9**	**36**	**7**	**5**	**54**	**124**	**0·4**	**5717**	**18·5**
West Districts:																								
Paddington	122,507	—	14	13	—	—	—	—	2	1	—	30	3·2	—	—	—	3	—	—	3	6	0·6	186	19·8
Kensington	151,535	—	15	15	—	3	—	—	2	—	—	35	3·0	—	1	—	1	1	—	1	4	0·3	256	22·0
Hammersmith	114,962	—	13	13	—	1	—	—	3	2	—	32	3·6	—	1	—	—	—	—	1	2	0·2	146	16·6
Fulham	145,186	—	34	20	—	1	—	—	3	—	—	58	6·2	—	1	—	1	—	—	3	5	0·4	196	17·6
Chelsea	57,368	—	4	2	—	—	—	—	3	—	—	9	2·0	—	1	—	—	—	1	—	2	0·5	86	19·5
City of Westminster	122,046	—	6	7	—	1	—	—	2	—	—	16	1·7	—	—	—	1	—	—	1	2	0·2	223	23·8
North Districts:																								
St. Marylebone	92,796	—	1	13	—	—	—	—	1	—	—	15	2·1	—	—	—	—	—	—	2	2	0·3	157	22·1
Hampstead	75,649	—	1	4	—	2	—	—	3	—	—	10	1·7	—	—	2	—	—	1	—	3	0·5	79	13·6
St. Pancras	186,600	—	17	38	—	1	—	1	13	—	—	70	4·9	—	—	—	3	—	—	2	5	0·3	304	21·2
Islington	297,102	—	25	27	—	—	—	1	8	—	—	61	2·7	—	2	—	3	—	—	4	9	0·4	396	17·4
Stoke Newington	47,426	—	2	6	—	—	—	—	1	—	—	9	2·5	—	—	—	1	—	1	—	2	0·5	62	17·0
Hackney	196,598	—	34	42	—	—	—	—	8	—	—	84	5·6	—	—	—	3	1	—	2	6	0·4	244	16·2
Central Districts:																								
Holborn	35,303	1	—	6	—	—	—	—	1	—	1	9	3·3	—	—	—	—	2	—	—	2	0·7	63	23·3
Finsbury	68,011	—	4	1	—	—	—	—	3	—	—	8	1·5	—	—	—	—	—	—	—	—	—	78	15·0
City of London	16,138	—	2	1	—	—	—	—	—	—	—	3	2·4	—	—	—	—	—	—	—	—	—	33	26·7
East Districts:																								
Shoreditch	89,675	—	12	5	—	—	—	1	2	—	—	20	2·9	—	—	—	—	—	—	1	1	0·1	135	19·6
Bethnal Green	107,362	—	27	31	—	1	—	—	5	—	—	64	7·8	—	—	—	1	—	—	2	3	0·4	155	18·8
Stepney	232,010	—	56	39	—	1	—	—	21	—	—	117	6·6	—	1	—	—	—	1	6	8	0·4	350	19·7
Poplar	143,443	—	28	10	—	—	—	—	7	—	1	46	4·2	—	—	1	—	—	—	3	4	0·4	234	21·3
South Districts:																								
Southwark	167,936	—	55	35	—	—	—	—	10	—	—	100	7·8	—	1	—	6	1	1	2	11	0·9	332	25·8
Bermondsey	107,635	—	12	35	—	—	—	—	4	—	—	51	6·2	—	—	—	1	3	—	—	4	0·5	178	21·6
Lambeth	272,038	—	52	39	—	2	—	—	6	1	—	100	4·8	—	—	—	1	2	—	6	9	0·4	404	19·4
Battersea	150,023	—	12	16	—	—	—	1	6	1	—	36	3·1	—	1	1	1	—	—	3	6	0·5	215	18·7
Wandsworth	300,787	—	38	45	—	—	—	1	7	—	—	91	3·9	—	1	—	—	—	—	5	6	0·3	350	15·2
Camberwell	239,461	—	22	44	—	—	—	—	12	—	—	78	4·2	—	1	1	2	1	—	4	9	0·5	352	19·2
Deptford	103,527	—	17	13	—	—	—	—	6	1	—	37	4·7	—	—	—	1	2	—	1	4	0·5	148	18·6
Greenwich	90,440	—	12	12	—	1	—	—	2	1	—	28	4·0	—	—	—	—	1	—	—	1	0·1	113	16·3
Lewisham	161,406	—	20	15	—	—	—	—	6	—	—	41	3·3	—	—	1	2	1	—	2	6	0·5	124	10·0
Woolwich	131,942	—	22	11	—	—	—	—	3	—	—	36	3·6	—	2	—	—	—	—	—	2	0·2	118	11·7
Port of London	—	—	2	—	—	1	—	—	—	—	—	3	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

The deaths from whooping-cough numbered 7, and were 45 below the average; of these, 2 belonged to Holborn. The 5 fatal cases of enteric fever were 3 below the average. The 54 deaths from diarrhœa and enteritis among children under 2 years of age were 38 below the average, and included 6 in Stepney, 6 in Lambeth, 5 in Wandsworth, 4 in Islington, and 4 in Camberwell. In conclusion, it may be stated that the aggregate mortality from these principal infectious diseases in London during December was 62 per cent. below the average.

Medical Diary for the ensuing Week.

SOCIETIES.

ROYAL SOCIETY, Burlington House, London, W.
THURSDAY, Jan. 30th.—Papers:—Prof. J. C. McLennan and Mr. R. J. Lang: An Investigation of Extreme Ultra-violet Spectra with a Vacuum Grating Spectograph. Prof. J. C. McLennan and Mr. J. F. T. Young: On the Absorption Spectra and the Ionisation Potentials of Calcium, Strontium and Barium.—Prof. J. C. McLennan, Mr. D. S. Ainslie, and Mr. D. S. Fuller: Vacuum Arc Spectra of various Elements in the Extreme Ultra-violet.—Mr R. C. Dearle: Emission and Absorption in the Infra-red Spectra of Mercury, Zinc, and Cadmium (communicated by Prof. J. C. McLennan).—Mr. E. Wilson: The Measurement of Magnetic Susceptibilities of Low Order (communicated by Prof. J. W. Nicholson).—Dr. F. Horton and Ann C. Davies: An Experimental Determination of the Ionisation Potential for Electrons in Helium (communicated by Mr. C. T. R. Wilson).

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.1.
MEETINGS OF SECTIONS.
Monday, Jan. 27th.
ODONTOLOGY (Hon. Secretaries—F. N. Doubleday, G. Paton Pollitt, J. Howard Mummery): at 7.30 P.M.
Paper:
Captain William Billington, M.S., D.R.C.S., R.A.M.C., Mr. Arthur H. Parrott, M.D.S., L.D.S., and Mr. Harold Round, M.D.S., L.D.S.: Bone Grafting in Gunshot Fractures of the Jaw.

Tuesday, Jan. 28th.
MEDICINE (Hon. Secretaries—Charles R. Box, W. Cecil Bosanquet): at 5.30 P.M.
Papers:
Dr. Gordon Ward: Apyrexial Symptoms in Malaria.
Dr. David Thomson: The Complement Deviation Test in Malaria.

Thursday, Jan. 30th.
BALNEOLOGY AND CLIMATOLOGY (Hon. Secretaries—Chas. W. Buckley, J. Campbell McClure): at 5.30 P.M.
Paper:
Dr. C. F. Sonntag: Temperature Environment and Thermal Debility, a Study of the Beneficial and Injurious Effects of Heat.

The Royal Society of Medicine keeps open house for R.A.M.C. men and M.O.'s of the Dominions and Allies. The principal hospitals in the metropolis admit medical officers to their operations, lectures, &c. Particulars on application to the Secretary at 1, Wimpole-street, London, W.1.

MEDICAL SOCIETY OF LONDON, 11, Chandos-st., Cavendish-sq., W.
MONDAY, Jan. 27th.—8.30 P.M., Discussion on the Modern Treatment of Gonorrhœa of the Genito-Urinary Organs, introduced by Col. L. W. Harrison, R.A.M.C. Followed by Capt. D. Thomson, Lieut.-Col. R. Bolam, Major A. Cambell, Capt. D. Lees, D.S.O., Capt. D. Watson, Mr. C. Williams, and others. Medical officers of the Colonial and Allied Armies will be welcomed at the meeting.

TUBERCULOSIS SOCIETY, at the Royal Society of Medicine, 1, Wimpole-street, W.
MONDAY, Jan. 27th.—8.30 P.M., Address:—Dr. J. D. Grant: Practical Remarks on Tuberculosis in Relation to the Upper Air- and Food-passages.

ROYAL SOCIETY OF ARTS, John-street, Adelphi, W.C.
WEDNESDAY, Jan. 29th.—4.30 P.M., Paper:—Dr. F. Keeble, C.B.E.: Food Production by Intensive Cultivation.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C.
Six Hunterian Lectures on Phases in the Life and Work of John Hunter. The Lectures will be illustrated by Hunterian Preparations, Drawings, and Records:—
MONDAY, Jan. 27th.—5 P.M., Lecture IV.:—Prof. A. Keith: John Hunter as a Physiological Anatomist.
WEDNESDAY.—5 P.M., Lecture V.:—Prof. A. Keith: John Hunter as an Experimental Physiologist.
FRIDAY.—5 P.M., Lecture VI.:—Prof. A. Keith: John Hunter as an Anthropologist.

KING'S COLLEGE HOSPITAL MEDICAL SCHOOL (UNIVERSITY OF LONDON), at the Lecture Theatre of the Medical School, King's College Hospital, Denmark Hill, S.E.
Course of Four Lectures on Malaria. Microscopic specimens and lantern slides will be shown at the two last lectures.
FRIDAY, Jan. 31st.—12 noon, Lecture I.:—Col. Sir Ronald Ross, K.C.B., K.C.M.G., F.R.S. Officers and Men of the Royal Army Medical Corps are invited to attend.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.
Clinics each week-day at 2 P.M., Wednesday, Friday and Saturday also at 10 A.M.
(Details of Post-Graduate Course were given in issue of Nov. 30th, 1918.)

ROYAL INSTITUTE OF PUBLIC HEALTH, in the Lecture Hall of the Institute, 37, Russell-square, W.C.
Course of Lectures and Discussions on Public Health Problems under War and After war Conditions:—
WEDNESDAY, Jan. 29th.—4 P.M., Capt. T Carnwath, D.S.O.: Lessons of the Influenza Epidemic.

Appointments.

FINZI, N. S., M.B., has been appointed Medical Officer in charge of the X Ray Department, St. Bartholomew's Hospital.

Vacancies.

For further information refer to the advertisement columns.

Alnwick Infirmary.—H.S. £150
Bath Royal United Hospital.—H.P. and H.S. £150.
Bedford County Hospital.—Res. M.O. £150.
Birkenhead Borough Hospital.—Jun. H.S. £170.
Birmingham General Hospital.—Vacancies on Res. Staff.
Bradford Royal Eye and Ear Hospital.—Ophth. S.
Cardiff City.—Female Asst. M.O. £350.
Devonport Royal Albert Hospital.—Res. H.S. £200.
Dorset County Council.—Temp. Asst. M.O.H. £400.
Elizabeth Garrett Anderson Hospital, Euston-road, N.W.—Female Temp Asst. S.
Govan District Asylum, Cardonald, Glasgow.—Sen. Asst. M.O. Also Jun. Asst.
Hospital for Consumption and Diseases of the Chest, Brompton.—H P. 30 guineas.
Italian Hospital.—H.S. £150.
Leeds General Infirmary.—Res. S.O. £150. Res. Aural O. £100 Oph. H.S. £50. Also Two H.S. and two H.P.
Manchester Royal Eye Hospital.—Junior H.S. £120.
Norwich, Norfolk and Norwich Hospital.—Fourth Res. Surg. O. £200.
Putney Hospital, Lower Common, S.W.—Res. M.O. £150.
Queen's Hospital for Children, Hackney-road, E.—Res. M.O. £200. Also H.P and H.S. £100.
Reading, Royal Berkshire Hospital.—H.P. and Sec. H.S. £250.
Royal Hospital for Diseases of the Chest, 231, City-road, E.C.—Clin. Assts.
Royal National Orthopædic Hospital.—Res. H.S. £100.
South London Hospital for Women.—Female Asst. Path. £150.
Taunton, Taunton and Somerset Hospital.—Sen. H.S. £250.
Tewkesbury Union.—M.O. £55.
University of London.—Examiners.
Western Ophthalmic Hospital, Marylebone-road, N.W.—Vacancies on Medical Staff.
Westmorland Sanatorium, Meathop, Grange-over-Sands.—Sen. Asst. M.O. and Asst. Tuberc. Officer. £350. Also Jun. Asst. M.O. £250.

Births, Marriages, and Deaths.

BIRTHS.

PLATT.—On Jan. 16th, at Daisy Bank-road, Victoria Park, Manchester, the wife of Harry Platt, M.S., F.R.C.S., Captain, R.A.M.C. (T.), of a son.
RANKIN.—On Jan. 11th, at Cairo, Kathleen, the wife of Captain Thomas Thomson Rankin, R.A.M.C., of a son.
TANNER.—On Jan. 12th, 1919, at Nursing Home, Worthing, the wife of Captain W. E. Tanner, R.A.M.C., of a son.

MARRIAGES.

HALLINAN—CROSBIE.—On Jan. 18th, at St. Mary's Church, Clapham, Major William Edward Hallinan, M.C., R.A.M.C., to Lilian Annie Crosbie, daughter of Colonel Crosbie, C.B.

DEATHS.

MOULD.—On Jan. 14th, at his residence, Colwyn Bay, George William Mould, M.R.C.S., in his 84th year.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

BOOKS, ETC., RECEIVED.

BUTTERWORTH AND CO., London, India, Winnipeg, and Sydney.
A Preliminary Course of Surgery. By R. L. Spittel, F.R.C.S. Rs 6.6.

CHURCHILL, J. AND A., London.
Surface Tension and Surface Energy, and their Influence on Chemical Phenomena. By R. S. Willows, D.Sc., and E. Hatschek. 2nd ed. 4s. 6d.
Catalytic Hydrogenation and Reduction. By E. B. Maxted, F.C.S. 4s. 6d.
Transactions of the Ophthalmological Society of the United Kingdom. Vol XXXVIII. 1918. 12s. 6d.

CONSTABLE AND CO., London.
Italian Sea Power. By A. Hurd. 2s.

FIFIELD, A. C., London.
Wise Parenthood. By Marie Carmichael Stopes, D.Sc. With Introduction by Arnold Bennett. 2s. 6d.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
The Early Treatment of War Wounds. By Colonel H. M. Gray, F.R.C.S. 10s.
Manual of Bacteriology. By R. Muir, M.D., and J. Ritchie, M.D 7th ed. 16s.
Manual of Elementary Zoology. By L. A. Borradaile, M.A. 2nd ed. 16s.

HODDER AND STOUGHTON, London.
The Disease and Remedy of Sin. By the Rev. W. Mackintosh Mackay, B.D. 7s. 6d.

LONGMANS, GREEN, AND CO., London and India.
Recent Advances in Organic Chemistry. By A. W. Stewart, D.Sc. With Introduction by J. N. Collie, LL.D. 3rd ed. 14s.
System of Physical Chemistry. By W. C. McC. Lewis, D.Sc. Edited by Sir Wm. Ramsay. 2nd ed. Vols. I. and II. 15s. each.
Intravenous Injection in Wound Shock (Oliver-Sharpey Lectures, 1918). By W. M. Baylis, D.Sc. 9s.

SIMPKIN, MARSHALL, London. LITTLEBURY, BROS., Liverpool.
Hypnotic Suggestion and Psycho-Therapeutics. By A. B. Taplin, L.R.C.P. and L.M. Edin. 10s. 6d.

Notes, Short Comments, and Answers to Correspondents.

HEALTH, MEDICINE, AND SANITATION IN INDIA.

II.

Punjab.

THE year 1917 was a healthy one for the Punjab, except for a prevalence of malaria in the last three months. The birth rate, 45·3 per 1000, was 0·1 below the quinquennial average, but the death-rate, 37·9 (the same as in the United Provinces) was 6·7 above the average, and was only exceeded by that for the Bombay Presidency (40·76) in the year under review; the high rate was due entirely to "fevers," which caused 510,812 deaths, equalling 26·42 per 1000, the highest mortality since 1908. Cholera was somewhat prevalent in Sialkot district, where there were 282 deaths from this disease; in Sialkot itself there were 114, and in Multan 118 deaths. Plague caused only 0·5 deaths per 1000, but as 40·4 (nearly half) of these occurred during the last two months of the year, a bad epidemic was anticipated in 1918. At Simla there were 25 cases of enteric fever, 22 of which were among Europeans; in 10 of these cases the disease was considered to have been contracted locally—no definite or common origin could be traced. Colonel H. Hendley, I.M.S., who presents the report, held the appointment of Sanitary Commissioner throughout the year, in addition to that of Inspector-General of Civil Hospitals.

North-West Frontier Province.

In the North-West Frontier Province the birth-rate in 1917 (32·1 per 1000) was 2·2 below the quinquennial average, and was lower than in any other province in India, except Assam; the decline is attributed to the severe outbreak of malaria in 1916. The death-rate was 29·9 per 1000, being higher than the quinquennial average (25·5); nearly all the deaths (viz., 24·8 per 1000) were returned as "fevers." No other disease caused as much as 1·0 per 1000 mortality. Lieutenant-Colonel T. W. Irvine, I.M.S., considers that the general population are too lethargic and lazy to take quinine until the attack actually comes on, and is doubtful whether its unsupervised issues is of any use. He recommends the cheaper quinodine as of value in treating mild infections.

Bihar and Orissa.

The growing appreciation of Western medicine is noticeable everywhere in the statistics of attendance both of indoor and outdoor patients at the charitable dispensaries. Most district boards have now set before themselves a definite programme for increasing the number of their dispensaries, and at the same time private practitioners are becoming more numerous and enterprising, and Government service is by no means the only career open to successful medical students. The province has now established a board of medical examiners and has adopted a Medical Act to control the regulation of qualified practitioners and penalise fraudulent practitioners. In this province the birth-rate for 1917 was 40·4 per 1000, a considerable increase over the ratio for 1916 (36·6), probably due to stricter registration, but lower than the average for 1911–15, which was 42·8. A table is given showing the great variation in birth-rates in the different provinces of India. Assam stands lowest (in 1917) with 31·3, and the Central Provinces highest with 48·1 per 1000. For the quinquennium, 1911–15, Madras was lowest (31·6), and the Central Provinces highest (49·2). The death-rate in Bihar and Orissa was 35·2, also higher than the ratio (32·8) for 1916, and that for 1911–15 (31·1). This increase is considered by Major W. C. Ross, I.M.S., the Sanitary Commissioner, to be a real increase, due to the general unhealthiness caused by prolonged and excessive rains. The mortality from cholera (3·1) was high. On account of the expense and difficulty in obtaining potassium permanganate for well disinfection, quicklime was used, also chlorogen. The mortality from fevers (22·5) was also high, the decennial ratio for 1907–16 having been 20·6 per 1000. Anti-malarial measures on the usual comprehensive lines are being carried out, but the people appear to take small interest in the work, and the difficulty of getting them to take quinine as a preventive continues, though matters appear to be now improving. Plague caused a mortality of 1·3 per 1000, higher than in the preceding year (0·7), due partly to copious and prolonged rains. Inoculation was carried out, but it is stated that it "has never been popular, and as it is not a general preventive measure of any real value, the maintenance of a special staff for inoculation has been discontinued." Rat-killing by public agencies is also considered to be "essentially a failure because it does not accomplish the destruction of any appreciable number of rats." Evacuation appears to be the only preventive of practical value, because it is accepted by the people and is carried out promptly. Major Ross advocates "a slow but definite programme of legislation, involving a gradual advance in the standard of sanitation required in communities, with a view to enforcing the idea of citizenship and responsibility in sanitary matters."

Assam.

From the vital statistics for 1918 it does not appear that the health of the province was seriously affected by the disastrous floods of October. There were cholera epidemics of some severity in Goalpara, Darrang, Nowgong, and North Lakhimpur but on the whole the mortality from this disease was below the average. There was no change in the general death-rate from small-pox, but the increased efficiency with which the provisions of the Vaccinat on Act are administered produced a substantial reduction in the prevalence of this disease in urban areas. Fever was rather more severe than usual in all districts. The mortality from kala azar varied little from that of the preceding two years, but the tendency which this disease is showing to spread in the upper districts of the Assam Valley, which have hitherto been free from it, is a source of considerable anxiety. In jails the death-rate per 1·00, which was reduced from 43·53 in 1914 to 21·40 in 1915, again fell to 18·51 in 1916, the last figure being the lowest ever recorded for the province. The number of hospitals and dispensaries in the provinces rose during the year from 205 to 215, of which 124 were supported by local bodies, 18 by private persons and 73 by the State.

Owing to the transfer of medical officers to military service and the difficulty of securing qualified substitutes the total number of institutions at work is still less by ten than it was at the commencement of 1914. A Pasteur Institute and School of Research was opened at Shillong in January, 1917, and has made a most promising start. The Assam Medical Bill the object of which is to protect the medical profession and the public from imperfectly trained and irregularly qualified practitioners has been passed into law.

The birth-rate in Assam for 1917 was 31·35 per 1000, slightly higher than in 1916 (30·52), but lower than the quinquennial average (1911–15) of 32·75, and lower than in any other province for 1917. The Sanitary Commissioner, Major T. C. McCombie Young, I.M.S., calls attention to the defective character of the registration and of the population returns. The death-rate was 27·09, compared with 28·59 for 1916 and 26·37 for 1911–15. An outbreak of typhoid occurred at Shillong; the civil surgeon, Dr. Gordon Roberts, and Captain R. Knowles, I.M.S., the director of the Pasteur Institute, carried out inoculation of 1760 natives, this being the first instance of an Indian population voluntarily submitting to typhoid vaccine inoculation on a large scale. An outbreak of diphtheria occurred in a boarding school at Shillong, apparently imported from Calcutta; stringent measures of isolation were adopted, suspected cases and contacts were swabbed, and the very large European child population of this crowded hill station saved from an epidemic by the prompt action of the medical authorities. Much work has been done in the way of malaria prophylaxis, especially at Lumding, an important junction on the Assam-Bengal railway. A large distribution of quinine tablets was made, and substantial improvements effected in details of drainage, application of larvicides, &c. Kala-azar, as has been indicated, increased during the year and extended to areas previously uninfected. The disease is "tending to extinction" in Sylhet, but Nowgong, with 591 deaths from this cause, shows a considerable increase over any previous year, and the disease is now endemic in this district.

The United Provinces of Agra and Oudh.

The year was an unhealthy one. There was a heavy death-roll from cholera, plague, and malaria, owing to the long continuation of wet. The death-rate was 39·95 per 1000. The birth-rate in 1917 was 46·08 per 1000, the quinquennial average (1912–16) having been 44·91. Shahjahanpur district had the excessively high death-rate of 79·22, due to cholera and fevers. The excessive mortality throughout the provinces is put down to cholera and fevers, including under the latter head relapsing fever. Infantile mortality was excessive (215·7), tetanus being unusually prevalent. Pamphlets and instructions to mothers and midwives in the vernacular have been distributed, midwives have been trained, and at Benares, Lucknow, and Allahabad municipal dairies have been established. Cholera is still somewhat prevalent (0·46 deaths per 1000) in spite of disinfection of wells and general sanitary improvements, but is much less fatal than had latterly been the case (1·24 deaths per 1000 in 1907–16). Plague caused 129 034 deaths (2·76 per 1000), a large increase over the quinquennial average of 1·85. This is considered to be disquieting, but the weather conditions favoured spread of the disease. The fever death-rate (27·06) was also unsatisfactory, being considerably higher than the quinquennial average of 21·74; in Shahjahanpur district the ratio was 68·69 per 1000. Owing to the scarcity of qualified officers, malarial investigations had unfortunately to be discontinued, but anti-malarial works were carried out, especially at the important station at Meerut. Owing to the high price of quinine the "quininisation" of school children was ordered by the Government to be dropped. Colonel C. Mactaggart, C.I.E., the Sanitary Commissioner, considers the high mortality from plague and "fevers" to have been chiefly due to excessive rainfall.

Baluchistan.

The province has enjoyed immunity from every kind of epidemic disease except cholera, which appeared in Zhob in June, 1916, when 35 villages were infected, causing 328 cases and 174 deaths. Thanks to the timely and energetic efforts of the local medical and civil officers the disease was prevented from spreading still further. A party of Powindahs who passed through the district on their way from the Punjab to Afghanistan was responsible for introducing the disease into Zhob. Antimalarial measures were adopted in several places with good results. During the year under report the number of malarial cases treated in the dispensaries of the province fell by 3·77 per cent. as compared with the number treated in the previous year. The vaccine operations among the Zarkun and Marl tribes show that the most ignorant and backward people of Baluchistan are now beginning to appreciate the advantages of vaccination.

Coorg.

An index in the well-being of the labourer is to be found in the state of the public health, which was considerably better than has been noted for several years. The number of births was 9·68 per cent. above, and the number of deaths 24·52 per cent. below the average for the previous five years. Quinine prophylaxis against malaria continued to be administered in the secondary schools with satisfactory results. 50,500 quinine powders were sold to the public through the agency of the post offices.

Delhi.

Sanitary conditions, especially within the city and civil station, continued to show the improvement which has resulted from the attention paid in recent years to this side of administrative activity. The municipal report shows that the sanitary establishment was increased, a new slaughter-house constructed, and drains extended. The important and costly antimalarial measures in the Bela were pushed on and one section completed; in the civil station a brick channel was constructed to the Najafgarh drain cut. Considerable additions were made to the city western extension, which should in the time draw off a large number of menial occupations from the city. The heavy monsoon rains rendered the year less healthy than its predecessor, but the death-rate (32·92 per 1000) nevertheless compared very favourably with the years preceding 1914. The excess of births over deaths, though lower than in 1915–16, also reflected a far more satisfactory state of things than in 1914.

The Andaman and Nicobar Islands.

The record of the health of the year shows improvement as compared with that of 1915–16, but the incidence of sickness and mortality has still been high. The main cause of sickness was, as usual, malaria, and of death pneumonia, now recognised to be a direct result of malarial infection in the settlement. Malaria not only affects the convict population, but persistently saps the vigour of the entire official staff, leaving after-effects in its wake which are often permanent.

Hyderabad.

The difficulties to which the people were exposed on account of unseasonable rain and high prices were still further aggravated by an extremely severe epidemic of plague. In Hyderabad city alone no less than 14 053 persons died of this disease between the months of October and April. In the districts the epidemic was no less severe, and in out-of-the-way villages the suffering was very great, as it was impossible to render these people any material assistance. The results of this visitation were far-reaching and extended to almost every department of the State. Progress on the more important works was seriously delayed and schools and courts were closed for several months. Numerous temporary hospitals to deal with plague were opened at the capital and in the districts.

Central India.

All the Agencies except Baghelkhand and Bundelkhand, were visited by plague, the only respite being in the hot weather. The incidence was severest in Indore, where there were 1777 deaths out of 2396 in the province. Fortunately, people now evacuate their houses as soon as rats begin to die, and the increasing popularity of inoculation is shown by over 90·0 persons having been inoculated in Indore. Cholera, in all parts of Central India, accounted for 5474 deaths. Small-pox was prevalent, but reliable figures cannot be given. The birth-rate shows a further fall from 11·81 to 11·15 per 1000, but the statistics are unreliable. The death-rate increased from 9·55 to 10·60 per 1000.

LEMON JUICE OR LIME JUICE?

To the Editor of THE LANCET.

SIR,—Yes, the "lime juice" used by the British Navy in 1854 was lemon juice, as Fleet Surgeon W. E. Home supposes. In my historical inquiry (THE LANCET, Nov. 30th, 1918) I gave the approximate date of the change from lemons to limes as "about 17 years" after, not the return of Sir John Ross in 1843, but the return of Sir James Clarke Ross from his search for Franklin in 1849. Records may be found of the supply of lemon juice from Malta up to the year 1862; this supply was for the whole Navy, excepting only ships on service in the West Indies which, from 1846, were furnished with juice from Bermuda. The Admiralty medical and victualling records later than 1862 are not kept in the Public Record Office, and, since I had enough information for my immediate purpose, I did not pursue further in the records the question of the exact date at which the change was made to West Indian limes. By 1875 the use of West Indian lime juice had been established in the Navy, and the belief in its superiority is further shown by the fact that it was used in the Merchant Service also as far as it was available: about one-third of the merchant ships were supplied with it, the other two-thirds having to be content with lemon juice.

Between these dates—1862, when Malta lemons were still used in the Navy, and 1875, when limes had superseded them—the Merchant Shipping Amendment Act was passed in 1867. Before that, what was supplied to merchant ships as lemon or lime juice was often grossly adulterated, but the mere fact of having so-called "lime juice" on board (compulsory since 1844) was taken by careless owners and captains as relieving them of any further responsibility for the care of the health of their crews. This Amendment Act of 1867 enacted that the lime or lemon juice issued must be such as had been approved, fortified, and sealed in the presence of an officer of Customs. And juice was received for examination and sealing only from manufacturers who held licences from the Board of Trade. I suppose that it would be on the introduction of these new regulations that the growing West Indian industry would have an opportunity of securing its position, but I have never exactly verified this supposition, and am at present remote from records. In any case, it was certainly about that time.

A fuller account of some facts in the history of "lime juice" is to be published soon in the *Journal of the Royal Army Medical Corps*.—I am, Sir, yours faithfully,

Jan. 21st, 1919. ALICE HENDERSON SMITH.

HEALTH AND RADIANT HEAT.

IN his lecture on Coal and National Health, delivered at the Royal Institute of Public Health on Jan. 15th, Professor W. A. Bone admitted that in the past a great deal of coal had been wasted in domestic grates through our ignorance of the first principles of combustion. The science of clothing as well as that of indoor heating and ventilation largely resolved itself, he said, into a question of aiding the skin in maintaining the normal bodily temperature under varying conditions of work and play without symptoms of discomfort and distress. Dr. Leonard Hill had laid down the conditions of comfort and health to be those prevailing in the open on a balmy summer day, with the ground warm to the feet, the surface of the body exposed on the one side to the radiant heat of the sun and on the other to the cooling breeze which played around the head. No monotony, but a continual change of thermal conditions. The cooling and drying breeze round the head meant that more arterial blood had to pass through the vessels supplying these parts in order to maintain the body temperature, and that far more lymph had to pass through the respiratory membranes to maintain the evaporation required to saturate the dry air. Contrast these conditions with the tropical and monotonous state of the warm, humid air of crowded rooms, heated by steam coils, and it became evident both what we ought to aim at and what we ought to avoid in our domestic heating and ventilation. The British climate being what it is, we should aim at warm floors and avoid monotony in our physical environment by the use of the open fireplace. Much waste of fuel and personal discomfort were, he said, unnecessarily caused by the prevailing practice of flooding living rooms in the early winter mornings with cold, damp air. Living apartments should at all times be sufficiently ventilated and aired whenever the external atmospheric conditions admitted, but in winter-time "airing" should be confined to the middle part of the day. In the early mornings or on cold raw days it was better to keep windows closed and to allow chimneys to draw in the outside air. The immediate line of practical reform lay in the direction of constructing all fireplaces on scientific principles and in substituting for the raw coal a low-temperature "semi-coke" as soon as this could be produced commercially on a large scale at a reasonable price. For gas fires silent combustion and adequate ventilating effect should be insisted upon. The choice between these two types of heating was, he said, determined not so much upon hygienic grounds as on personal predilection and local conditions.

A WARNING.

To the Editor of THE LANCET.

SIR,—Thefts from motor-cars are on the increase. I have just had a nitrous oxide oxygen outfit stolen from my car, which had been left for 25 minutes outside a shop in New Cavendish-street, and I gather from the police that other thefts occurred on the same day, Jan. 15th. As my box weighed about 60 lb., and only contained stuff of value to an anæsthetist, I imagine that the thief is somewhat disappointed. I send this notice in the hope that others in this neighbourhood may be on their guard.

I am, Sir, yours faithfully,

Upper Wimpole-street, W., Jan. 18th, 1919. H. EDMUND G. BOYLE.

D. R. H.—No English translation of Nagelschmidt's book on Diathermy has appeared, but we are informed that a work on the subject from the pen of Dr. E. P. Cumberbatch, medical officer in charge of the electrical department of St. Bartholomew's Hospital, will shortly be published by Heinemann.

Communications, Letters, &c., to the Editor have been received from—

A.—Major G. J. Arnold, R.A.M.C.; Mr. J. E. Adams, Lond.; Mr. J. L. Austin, Sheffield.

B.—Surg.-Capt. P. W. Bassett-Smith, R.N.; Mr. H. Blakeway, Lond.; Dr. H. Brown, Lond.; Capt. H. S. G. Boyle, R.A.M.C., Lond. Boot's Pure Drug Co., Nottingham; Mr. G. Bethell, Lond.. Battersea General Hospital, Lond., Sec. of; Mr. H. A. Baylis, Lond.; Mr. J. L. Brown, Bombay; Dr. M. E. Barnes, Chiengmai, Siam; Prof. W. M. Bayliss, Lond.

C.—Col. S. L. Cummins, A.M.S.; Dr. R. Craik, Lond.; Countess of Dufferin's Fund, Delhi, Joint Sec. of; Dr. H. P. Cholmeley, Forest Row; Mr. E. Clarke, Lond.

D.—Mr. H. Dickinson, Lond.; Mrs. K. Duffy, Jesmond; Dowsing Radiant Heat Co., Lond.

E.—Dr. A. Erdos, Nagyvarad, Hungary; Mr. A. Evans, Swansea.

F.—Mr. C. Fitch, Lond.; Dr. A. W. Falconer, Aberdeen; Major E. R. Fothergill, R.A.M.C.; Dr. H. L. Flint, Mansfield.

G.—Capt. P. Gully, R.A.M.C.; Mr. W. Glenister, High Wycombe; Mr. H. E. Girdlestone, Petersfield; Capt. D. Guthrie, R.A.F.

H.—Major F. Hobday, A.V.C.; Lt.-Col. A. F. Hurst, R.A.M.C.; Mr. J. T. Henderson, Pietermaritzburg. Mr. M. Hill.

I.—Insurance Committee for the County of London; Mr. S. T. Irwin, Belfast.

L.—Mr. K. A. Lees, Lond.; Mr. H. J. Langford, Plymouth; Dr. E. Lowry, Lond.; Liverpool Medical Institution, Sec. of.

M.—Dr. H. E. C. K. Murray, Burley; Metropolitan Asylums Board, Lond.; Mr. J. Y. W. MacAlister, Lond.; Dr. P. McBride, Edinburgh; Dr. J. Maberly, Woodstock, Cape Province; Medical Research Committee, Lond.; Lt.-Col. S. Mort, R.A.M.C.; Medico-Psychological Association of Great Britain and Ireland; Dr. A. McDougall, Alderley Edge; Mr. A. P. Melville, Edinburgh; Capt. D. M. MacRae, S.A.M.C.

N.—North London Medico-Chirurgical Society, Hon. Sec. of; Major G. E. Newlin, A.R.C.; *National Medical Journal*, Lond.

O.—Oliver-Pell Electric and Manufacturing Co., Lond.; Capt. S. A. Owen, R.A.M.C.

P.—Mrs. A. Pratt, Lond.; Panel Committee for the County of London; Mr. R. D. Pedley, Lond.; Dr. E. Pritchard, Lond.; Dr. F. J. Poynton, Lond.; Rt. Hon. Lord Parmoor, Lond.

R.—Dr. C. Riviere, Lond.; Royal Statistical Society, Lond.; Mr. C. B. Richards, Bridge-of-Allan; Royal Institution of Great Britain, Lond.; Royal Medical Benevolent Fund, Lond., Sec. of; Dr. W. B. Russell, Colwyn Bay; Mr. S. C. Ranner, Lond., Royal Society, Lond.; Royal Society of Arts, Lond.

S.—Prof. J. W. W. Stephens, Liverpool; Dr. L. Stamm, Lond.; Capt. A. G. Shera, R.A.M.C.; Dr. B. Solomons, Dublin; Col. A. W. Sheen, A.M.S.; Scottish Poor-law Medical Officers' Association, Lond.; Dr. G. E. Shuttleworth, Lond.

T.—Capt. A. J. Turner, R.A.M.C.; Sir John Tweedy, Lond., Capt. D. Thomson, R.A.M.C., Dr. J. Tatham, Oxted, Dr. A. H. Thompson, Lond.; Capt. A. J. Turner, R.A.M.C.; Dr. D. Turner, Edinburgh.

W.—Wallace Automatic Disinfecting and Deodorising Co., Lond.; Sir Kingsley Wood, M.P., L.C.C., Lond., Sir William Hale White, Lond.; Mr. J. Wallace, Bombay; Dr. D. P. D. Wilkie, Edinburgh; Dr. A. Wylie, Lond.

Communications relating to editorial business should be addressed exclusively to The Editor of THE LANCET, 423, Strand, London, W.C. 2